

October 14, 2003

MEMORANDUM

UTAH DEPARTMENT OF TRANSPORTATION

TO: Jim McMinimee, P.E., Chairman

FROM: Farrell Wright
Secretary, Standards Committee

SUBJECT: Standards Committee Meeting Minutes and Next Meeting

The next meeting has been scheduled for Thursday, October 30, 2003 at 8:00 a.m., in the main 1st floor conference room of the Rampton Complex. The agenda for the meeting follows.

Item (Action Log Reference follows agenda item number)	Remarks	Sponsor
1. Minutes of August 28, 2003	For approval	Farrell Wright
2. (13) Standard Specification 13592, Roadway Weather Information System - Environmental Sensor Station (RWIS-ESS) and associated drawings	For approval	Sam Sherman
3. (10) Update for Standard Drawing GW 10, Delineation Application	For discussion	Jim McMinimee
4. Standard Drawings SN 2, School Speed Limit Assembly and SN 3, Overhead School Speed Limit Assembly	For approval	John Leonard
5. (1) Rumble Strip Policy Update	For discussion	Robert Hull
6. (5) Painted Cattle Guard	For discussion	Robert Hull
7. (6) <i>AASHTO's Guidelines for Geometric Design of Very Low-Volume Local Roads ADT (≤ 400)</i>	For discussion	Jason Davis
8. (12) Modification of Pay Reduction Factors For Concrete Products	For discussion	Boyd Wheeler Bill Lawrence
9. (15) Typical Sections (DD 4, 11, 12, 13)	For Approval	Steve Ogden Darren Bunker
10. Standard Specifications 00120, Instruction to Bidders and 00515, Award and Execution of Contracts	For Approval	Thom LeHolm
11. Standard Specification 01575, Dust Control and Soil Stabilizing	For Approval	Barry Sharp
12. Standard Specification 01721, Survey and 01722, As-Built Construction Plans	For Approval	Larry Buss
13. Review of Assignment/Action Log	For review	Jim McMinimee
14. Meeting Improvements (on-going agenda item)	For discussion	Jim McMinimee
15. Other Business		

JCM/ba
Attachments

cc:

Ahmad Jaber
Director, Region One
Randy Park
Director, Region Two
Tracy Conti
Director, Region Three
Dal Hawks
Director, Region Four

Sterling Davis
Dave Nazare
Darrell Giannonatti
Tim Biel
Stan Burns

Robert Hull
Jason Davis
Farrell Wright
Barry Axelrod
Carlos Machado, FHWA
Mont Wilson, AGC

Listing of Standard Drawings for Agenda Item 9

DD 4	Geometric Design for Freeways (Roadway)
DD 11	Rural Multi Lane Highways Other Than Freeways
DD 12	Rural Two Lane Highways
DD 13	Frontage and Access Roads (Under 50 ADT)

August 28, 2002

A regular meeting of the Standards Committee convened at 8:00 am, Thursday, August 28, 2003, in the 1st floor conference room of the Rampton Complex.

Members Present:

Jim McMinimee	Project Development	Chairman
Jason Davis	Engineering Services	Member
Farrell Wright	Standards and Specifications	Secretary
Tracy Conti	Region 3	Member
Dave Nazare	Structures	Member
Darrell Giannonatti	Construction	Member
Robert Hull	Safety	Member
Sterling Davis	Maintenance	Member
Tim Biel	Materials	Member
Mont Wilson	AGC	Advisory Member
Carlos Muchado	FHWA	Advisory Member

Members Absent:

None

Staff:

Barry Axelrod	Standards and Specifications
Patti Charles	Standards and Specifications
Karl Verhaeren	Region 4
Darren Bunker	Engineering Technology Systems
Bill Lawrence	Materials
Boyd Wheeler	Structures
John Leonard	Traffic and Safety
Sam Sherman	Traffic Operations Center
Terry Johnson	Environmental
Jim Baird	Right of Way

Visitors:

Roland Stanger	FHWA
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Standards Committee Meeting

Minutes of the August 28, 2003 meeting:

1. Minutes of June 26, 2003 meeting were approved as corrected.

Jim pointed out on page 8 of the minutes, in the last paragraph, the reference in the last sentence should read “optimal safety option” and not just “optimal options.”

Motion: Dave Nazare made a motion to accept the minutes as corrected. Seconded by Jason Davis. Passed unanimously.

2. 800 Series Standard Drawing Conversion Process (Typical Section Discussion) (Agenda Item 2) – Item presented by John Leonard (drawings) and Darren Bunker (typical sections).

Darren said he wanted to update the Committee on what is being looked at on typical sections. Steve Ogden is helping with that but is not ready to make a recommendation. Darren said the Committee could refer to DD 4 in their package during the discussion. He went on to explain the problem designers are having in relation to note 7 on DD 4 and drainage issues. The proposed solution is to carry the 6:1 slope all the way to the bottom of the ditch.

In response to comments Darren went on to say in reference to note 4 that roads are no longer constructed this way. Measuring in the past was done with a tape but with current technology it is now done electronically. It is easier to design based on slope not constant width as in the past. He went on to say that in discussions with Maintenance, the fifth note does not hold true through super elevation. Darren said his proposal is to design to the slope, allowing a cost savings.

Discussion points were:

- Jim asked Farrell for his thoughts. Farrell said he has discussed this with Darren and has a positive attitude toward the recommendations. He said it also helps the designer through the use of MicroStation.
- This would apply to all drawings with typical sections. In response to a request for a motion, Darren said they weren't ready for that yet, wanting to present this just for discussion at this time. Something should be ready by the next meeting.
- Karl said there is more here than meets the eye. He said some of what is driving this is the process the designer has to go through in InRoads. The other point that was made was the potential for significant earthwork savings. Karl said there are a lot more things going on that could alter our processes beyond what is being recommended here.

- Karl said having the constant width has for the most part caused us to construct slopes much flatter than 6 to 1. He said his only concern deals with overlays. He added that this has also been voiced by Maintenance. Darren said the 6 to 1 could be flattened out in anticipation of overlays.
- Jim said he wondered if that was the cost effective thing to do. Karl said that was kind of what he was saying.
- Jim commented to Sterling about previous discussions many years ago about granular borrow and the effects on vegetation management. It doesn't help vegetation and we end up growing weeds that have to be dealt with. This is something that has to be considered. Darren said he didn't see a drainage problem and that the granular borrow as an A1-4 material years ago. It is now A-1a and is more permeable. He said he would bring something back next time.

Action Item: Update on Typical Sections.

- The discussion moved on to the conversion process.

John said they went through each of the drawing to address each of the comments and concerns they had received. He pointed out that each drawing had a separate submittal sheet addressing those points.

Discussion points were:

- In response to a comment from Jason, John explained his coordination process. Jason said he was concerned about the feedback loop and if those sending in comments got to see the final product. Bob commented about the coordination process, asking how many designers for example around the state have to be contacted and give consensus for a change. Jason said that was not what he meant. He said he meant if someone made a recommendation, how did they know if it was incorporated or not, and if not, why. John said every comment they received was addressed one way or another. Some were rejected. John added that they met with some people personally. He further explained his process. John said that while they may not have satisfied everybody, they do have something that will work for everybody.
- Bob said this process has been a significant burden on his entire staff, adding that he has had to borrow some people. He concluded by saying he would like to get these drawings finalized and out.
- John said the set of drawings is their best effort shot based on the consensus of the people they have talked too.

John began the specific drawing discussion with DD 2. He said there were two issues that were addressed. One was the standard cut slope, adding the second sentence to note 5. The sentence was added to several drawings to make them all consistent. A comment was added to the Cut Ditch Flaring Detail. Both were recommended by Structures. Being no further discussion on DD 2, John moved on to DD 4. He said Rex Harris's group in Region 1 suggested note 13. This allows for better computer modeling.

Discussion points were:

- Based on comments and the earlier discussion on typical sections John said note 4 has not changed and is the same as presented last time. Discussion continued on other drawings and associated wording. The notes are basically the same.
- Jim asked for the Committee's pleasure. Dave said that Darren was just presenting more information that would be brought back. Jason said he didn't see anything that would prevent the approval of the drawing.
- Jim said he was a little concerned about passing this drawing now, knowing that next time there could be a change based on Darren's discussion. Could that work be expedited to be included in this change? Dave commented about forming a task group to look at the issue. He added that looking at what Darren said it might be a change in the way the Department does business. Dave said he didn't think we would want to hold up these drawings to figure everything out. A comment indicated it was more than just the drawing. The impact would be on six to eight drawings. Jason said it might be good to change the drawings again because it is for a completely different reason and that it would help draw attention to the change for the benefit of the designers. Dave said he would be surprised if they have something in October.

The discussion moved on to DD 5. John said the main concern was the chevrons in the Island Detail. The chevrons are not required so optional was added to that part of the detail.

Discussion points were:

- Jason commented about this being the optimal solution or best use of transportation funds. John said that decision sometimes has to be left up to the designer. Discussion continued on usage examples. Jason said the use of the word "optional" means encouraged and encouraged makes it a standard. John said if the Committee wishes, the "optional" can be changed and a note 5 added to be as directed by the region traffic engineer. Jason said his question is why do we show the chevrons at all. Bob asked who is insisting that the chevrons be there. Jason said additional safety features can be placed and don't have to be on the standard drawing. Bob asked if another drawing showed the chevron painting. John said ST 5 shows some of the details, adding that they will be modifying that drawing in the future. At that time more details can be added.

Action Item: Traffic and Safety to modify Standard Drawing ST 5 in the future to include chevron painting details.

- Farrell commented about the title of the drawing, suggesting that it be “Entrance & Exit Ramps At Crossroads.” Both DD 5 and DD 6 have the same title. John agreed.

The discussion moved on to DD 6. John pointed out that someone caught the fact that rumble strips do not go in the gore. He said the table for “L” and “D” was added. The only changes from last time were to remove an inappropriate note and to add the table. There was no discussion on DD 6.

Moving on to Freeway Crossovers, John said there are three drawings on that subject. John pointed out that during coordination he had been in contact with Richard Miller in Maintenance and not Sterling. This caused some confusion at the last meeting. Continuing, John indicated the crossover radius was clarified.

Discussion points were:

- In response to a comment from Jim, John said the point is to make the crossover as relatively small as possible while still providing what we need to get our equipment around without the crossover becoming to visible or attractive to the general public. Note 6 takes care of this.
- John pointed out that while reviewing DD 7 they noticed that both “Crossover” and “Turnaround” were used interchangeably on the drawing as well as on GW 9 and ST 2. The AASHTO book was checked and it was determined that the correct term is “Crossover.” Editorial changes were made to these two drawings.
- Jim asked a procedural question. He commented that the Region Traffic Engineer doesn’t get to place the crossovers just anyplace but has to go through a process with FHWA. How is that thought included on the drawing? John said his opinion is that the Region Traffic Engineer should know the procedures he has to go through. This includes consultation with the Maintenance people on the best locations as well as FHWA to minimize the number of crossovers. Roland said he signs off on it. Bob said the intent is that a policy or guideline be include in their traffic manual. Jim said that is what he is struggling with, as to whether to reference that policy. Bob said it is a management training issue.
- Discussion continued on the radius requirements with John clarifying the requirement.
- Dave asked about the double crossover based on the discussion from previous meetings. John said he discussed this with Sterling with the decision being made to leave that detail on the drawing. Sterling indicated he had talked to the operations engineers.

Discussion continued with DD 14, the last of the 800 series drawings to be converted. John pointed out that this drawing had not been presented before and during coordination only three comments were received. While the comments were only editorial in nature two of the comments addressed note 8. John said both Sterling Davis and Degan Lewis thought if it is important enough to talk about having a four-legged intersection they both wondered why we didn't have a separate drawing or detail for that intersection. John said the note indicates that if there is a four-legged intersection, both sides have to match. The question is would it be more appropriate to have a secondary drawing to address the four-legged intersection.

Discussion points were:

- In response to comments, John said he agreed with Sterling and Degan and that the note is not as clear as it could be. John said note 8 could be deleted and a second drawing considered for just the four-legged intersection. Dave agreed but thought note 8 should remain until the new drawing is completed. At that time an editorial change could be made to DD 14 to remove the note.

Action Item: A new drawing depicting the four-legged intersection to be developed.

- Jim asked about the two different radiuses shown on DD 14. John commented that one is for paint and the other for asphalt to provide a tracking area for larger vehicles. How should the 40-foot radius be shown to apply to stripping?
- Jason commented about the reference to the current edition of AASHTO and wondered if future changes could affect the exhibit references. John said that is a possibility and suggested calling out the title of the exhibit, not the number. The titles have not changed over the years while the exhibit numbers have changed slightly. Jason asked why we couldn't just refer to AASHTO. Jason said we were going to stop duplicating AASHTO and train our designers to use and learn AASHTO. John said he would make editorial changes to notes 3 and 4 and remove the exhibit numbers.
- John commenting on note 5 based on Farrell's input said the note is exactly as shown with the picture not showing an acceleration lane. John said if an acceleration lane is used then the acceptance lane is not needed.

GW 11 was covered next. John said there had been a question on note 3. He said this has been an ADA requirement since 1993. In response to comments John said the note is here because people are just not familiar with the ADA requirements. John said that concludes everything on the 800 series drawings except for the possibility of a drawing for four-legged intersections.

- Jim commented on the crossover roadway markers. He said he thought in the old drawings the dimension was specified from the roadway surface to the bottom of the post and that is different from what is being shown. John said nothing on the drawing was changed except for one or two words, adding that the drawing he updated came from the Standards Section. In referring to drawing 726-4, no difference could be seen. Jim said he would check his drawing.

Motion: Dave Nazare made a motion to approved Standard Drawings DD 2, DD 4, DD DD 5, DD 7, DD 14, GW 9, GW 11, and ST 2 as discussed and modified. Seconded by Bob Hull. Passed unanimously.

Priority Three was set for the approved drawings.

3. Standard Drawing GW 10, Delineation Application (Agenda Item 3) - Item presented by John Leonard.

John said modifications to this drawing were made at the request of mostly Regions 3 and 4 with some input from Region 2. The changes were from the Maintenance area. The drawing shows additional delineators on the exit and entrance ramps. Spacing on the main line was increased based on the MUTCD. The result is a lot less delineators total, with more on the ramps as requested by Maintenance. John said the language on chevron location was cleaned up.

Discussion points were:

- Jason asked if the 100-foot spacing on the ramps was an MUTCD requirement. John said that was a concern of the Maintenance folks and that they wanted the spacing relatively tight for snow removal.
- In response to a comment from Jim, John said the changes are based on several conversations with area supervisors. Jim said it is interesting because his recollection was people complaining about how much maintenance there was on ramps even at the current spacing. John said right now there is no call out for spacing on ramps.
- Jim asked about costs and man-hours. John said the change doesn't necessarily have to be retroactive, being just for new projects. Jim commented about maintenance using the latest drawing when doing work on a ramp, doing a retrofit. Bob said on this drawing they are representing a group other than Traffic and Safety and that the drawing be removed from consideration and sent to Maintenance. They can then take it to their quality panel and update as needed. John pointed out that other changes were made as well. He said they could clean off the specific delineation for the ramps and go with the remainder for approval.

- Jim asked if the MUTCD specified delineation on the ramps. John said he didn't think so. The discussion continued on the "should" and "shall" distinction in the MUTCD. John said they could change the drawing to delete the reference to the 100-foot spacing on the ramps. He continued by encouraging that the remainder of the drawing to go through because it will save the Department money.
- Discussion continued on placement of ramp delineators in snow versus non-snow and lighted versus non-lighted locations. Bob reiterated that fact that this is a maintenance issue and not a Safety issue. Jim said that it seems to be a safety issue for the Maintenance area if they don't have the delineators. Bob said there is no information to support that.
- Jim asked Sterling how long he thought it would take for the Quality Panel to come up with a recommendation. Sterling said the next meeting is not until November. Sterling said the direction he would recommend depends on how quickly the Standards Committee wants the issue resolved. John pointed out that a lot of projects would be advertised in the next few months for construction next year so getting it out quickly would reduce costs.
- Jason asked about the priority level, thinking that with a lot of projects coming out would it be appropriate to set a priority three. John thought a one or two would be more appropriate.

Motion: Bob Hull made a motion to approved Standard Drawing GW 10 as discussed and modified to match the MUTCD requirements minus the optional delineation hardware shown on the drawing (for ramps). Seconded by Tracy Conti. Passed unanimously.

Priority Two was set for the approved drawing.

Action Item: Following the meeting and prior to publication further discussion and drawing update took place. An update to be provided at the October meeting. Change published as a priority three with the other new and changed drawings.

4. Standard Drawing TC 17, Traffic Control Single Lane Closure Moving/Intermittent Operations and TC 18, Traffic Control Multi-Lane Closure Moving/Intermittent Operations (Agenda Item 4) - Presented by John Leonard.

John said they had been getting a lot of requests to provide information on these areas so these drawings were put together during the January time frame. Updates with respect to the vehicles were made following the last meeting. The Region Traffic Engineer has the option of not using the vehicle.

Discussion points were:

- Jason said he was confused on the required statement versus the option requirement. John said if they used everything shown it would require one more vehicle than what we would normally have out there. To clarify, the MUTCD “should” condition applies to vehicle number two. John went on to explain notes 9 through 11.
- Jason asked about the conditions that have to be considered by the Region Traffic Engineer in order to not use vehicle number 2. John said up to 40 mph, the decision could be made by those doing the work, mainly the Maintenance Stations. The Region Traffic Engineer would make the decision on high-speed roads, 45 mph and up.
- Jim commented about the process. He said if the bid package showed it without the vehicle it would be harder for the Traffic Engineer to say the MUTCD should requirement the vehicle. John agreed. John said at the higher level it gets rid of the gaps and shortens the gaps considerable. Jim said he had a problem there. What leads us to believe that? He said the MUTCD says this and draws this. What evidence do we have that says it is required? John went on to explain the situation. Based on additional comments John said the “should” condition is you should really do it unless you have a real good reason not too. It is not the true standard of the “shall” condition.
- Jim asked what compels us to believe that we are different from the balancing act they went through. He compared it to the delineation discussion about having accident data to justify a direction. That is the thought process we should have. Do we have evidence that our situation here at UDOT is so much different from the national situation that we would require this above and beyond MUTCD? Sterling based on his experience with the national committee commented on engineering judgment and using the MUTCD as minimums.
- Discussion continued on the process of what goes in a standard drawing and what does not. Jim said there is a difference in what we use during maintenance operations and what we expect from Contractors. He said we need to get a point where the philosophy on both sides, construction and maintenance, is the same, using the same standards. Jim went on to say that we want the traveling public to expect the same thing every time they encounter one of our operations, maintenance or construction. He said he believes we need to put in the standard drawings what we are going to put on the road and then work management to get to that point.

- Bob asked where does that break down. If we have all these standards, but if management does not enforce them it is useless. Where does that responsibility fall? Who makes that call? Jim said the Standards Committee today has to make that call as to what the standard is and why. Bob said the reality is that if for example a maintenance crew doesn't like the standard they are not going to follow it. That is the issue, equipment or not.
- Discussion continued on the use of vehicle number two on the drawing. Bob said that we show the option for vehicle number two on the drawing, adding that he has also heard in the discussion that we disagree with that. Jim said that maybe he wasn't clear on what he had said. Is this consistent with our decisions we have made with other standard drawings? Is this the same kind of discussion we had before about showing optional chevrons or optional delineators?
- Dave said if we really don't need it take it out. Jim said if we need it and are prepared to show why we are different from everybody else using the MUTCD then lets do it.
- Dave asked if we are incurring any kind of liability if we leave it as optional. Comment indicated it is a "should" condition, higher than an option. John said the original version of this drawing did indicate required, but was made discretionary based on concerns. John added that most sheds have sufficient vehicles for the operation.
- Bob said the option still has to be available or we are going below minimum standards in the MUTCD. He said we couldn't do that. Bob said he was concerned about having it there or not.
- Jason said he would like more information, particularly what other states are doing.

Action Item: Traffic and Safety to get more information on the requirements for the second vehicle and usage by other states.

- The drawings will be brought back to the next meeting.

5. Standard Drawing SN 6 or SN 6A, Speed Reduction Sign Sequence (Agenda Item 5) - Presented by John Leonard.

John said SN 6 shows the reduce speed sequencing into the local towns. He said the purpose of the drawing is to start getting uniformity out there. This came up through the Traffic Engineering Panel. It would not be retroactive, but how we do it in the future. John said the second drawing is exactly the same thing except under the proposed revisions to the MUTCD there is a new MUTCD coming out in October. He explained the difference, indicating the drawing was prepared both ways until the final ruling comes out.

John pointed out the 800-foot spacing is the most typical spacing that has been used. The only thing that changes between the two drawings is the actual sign.

Discussion points were:

- In response to a comment from Dave, John said the drawings could be approved conceptually.
- Barry asked, if approved, when would the drawing be published? The response was October. Barry pointed out that unless there is an emergency change they don't normally publish between meetings. John said we could wait to publish it following the October meeting, but finish up business on it now.
- John said the feeling of the Traffic Engineering Panel was that in some unusual circumstances that a more conservative approach would be consistent with the roadways out there. That is where the signing table comes from and only is to be used if the Region Traffic Engineer gets involved. John said for most situations it would be the 800-foot installation. Bob said the table provides consistent guidance if less than the 800-foot distance is available.
- Dave asked if use of the table was by approval of or by direction of the Region Traffic Engineer. It was decided that "direction" would be more appropriate. Discussion continued on how and what to show. Bob said that similar discussion took several months in the Traffic Engineering Panel.

Motion: Jason Davis made a motion to approved either Standard Drawing SN 6 or SN 6A as discussed, pending MUTCD direction. Seconded by Tracy Conti. Passed unanimously.

When published the drawing will be a priority three.

6. Standard Drawing ST 9, School Crossing and School Message (Agenda Item 6) - Presented by John Leonard.

John said this drawing combines parts of ST 4 with the use of the "School" message into one drawing. The drawing is in conformance with a new administrative rule the Department is publishing for school zones. John said the only thing that is new is the yield stop bar. This is new in the MUTCD. Concept wise there is nothing new. John added that there is no conflict between the two drawings.

Discussion points were:

- Bob pointed out that the "School" word placement is new, with the purpose of providing better guidance on placement. The drawing is consistent with the MUTCD.

- Farrell asked if we had a specification for red paint as referenced in note 7. No one could think of one.
- Jason asked when was the last time we painted curbs. John said we very rarely paint the curbs, but sometimes allow the cities to paint the curb. John said local cities and counties also use the drawing because it is referenced in the Department's School Zone Manual. He added they are trying to highlight that the red paint is not the regulatory device. The sign is the regulatory device.
- John said the rule becomes law in two weeks so there is no wait like the previous drawings.

Motion: Tracy Conti made a motion to approved Standard Drawing ST 9 as presented. Seconded by Bob Hull. Passed unanimously.

Action Item: Standard Drawing ST 4 (Crosswalks, Parking and Intersection Approaches) to be updated based on approval of ST 9.

Priority Three as specified on the submittal sheet.

7. Standard Specifications 09972, Painting for Structural Steel; 09991, Cleaning and Repainting Structural Steel; and 09992, Cleaning and Overcoating Structural Steel (Agenda Item 7) - Presented by Boyd Wheeler and Bill Lawrence.

Boyd said the specifications were updated from the last time they were discussed by the Committee. The specifications change the requirements of the painting contractors. A few editorial changes were also made. Boyd began by pointing out that 09972 is for new structural steel. He said in addition to the changes indicated in the specification they anticipate adding a section covering the top flange. Currently the specification does not address not painting the top flange but it is current practice with the contractors not to paint it.

Discussion points were:

- Jim referring to the submittal sheet asked about the reference to a slight increase in unit bid costs and if a figure was available. Bill said he didn't know. He said he knew the cost of certification. It is between \$5,000 and \$6,000 for the first four years. After that it is a three-year cycle at a reduced fee of around \$1,000 to \$1,500. Bill said he thought the cost to us would be kept down because the certification would qualify Contractors for a lot more than just UDOT work. It will open up the market for them.
- Tim said UDOT would no longer have to manage the certification program. Jim asked how many man-hours the Department spent doing that. Bill estimated two to three hours per project if everything went well. He said if problems and corrections had to be made it could be days or weeks.

- Jason asked Barry about referencing other web sites in our specifications. There could be a problem if that site's address changes. Barry asked if what Jason was getting at was having a UDOT web page with the various links that could be updated without impacting the specification. Jason concurred. Barry said that could be done. Dave asked if that could be checked. Barry said if they have the link on one of their pages they could determine if it was still correct. Barry suggested that if they went this direction it would be something that could be implemented when the next version of the specification book comes out in January. That way a change would not be required for each specification that had a web address included.

Action Item: Web page to be developed with a listing of all outside web links currently found in the Standard Specifications.

- Referring to 09972, article 1.5, Farrell pointed out the need to rewrite the specification in active voice.
- Boyd said the same basic changes apply through all three specifications.
- Referring to 09972, 3.1A, Tim asked who makes the determination. Boyd said the Engineer makes the determination.

Motion: Dave Nazare made a motion to approved Standard Specifications 09972, 09991, and 09992 as modified and discussed. Seconded by Tim Biel. Passed unanimously.

Priority Three as specified on the submittal sheet.

Dave commented that Boyd and Bill are working on pay reduction factors for concrete products. This would apply to pavement, structural, and non-structural concrete. They will be making a recommendation for the measurement and payment document.

Action Item: Pay reduction factors for concrete products to be modified.

8. Rumble Strip Policy Update (Agenda Item 8) - Presented by Robert Hull.

Bob said the intent was to have a draft policy ready for this meeting, but because of concerns that have come up on a regular basis the policy will be based on other guidelines and recommendations that are out there. In order to make it more applicable to the state of Utah, Bob said they are in the middle of crash data analysis so they can better argue their case for or against rumble strip locations. Bob said he is comfortable with the work being done based on the last six months of discussion.

Discussion points were:

- Jim asked Bob if Stan (Research) was working with them on this issue. Bob said Stan is working on application techniques to help them.

9. Review of Standards Section Web Survey, (Agenda Item 9) – Presented by Farrell Wright.

Farrell said that over a month ago Barry posted a survey on the Standards Web site. The survey had ten questions. Farrell said they were hoping to get a hundred plus responses, but only got 34 responses. A compilation and graph of the responses were handed out to the members. The questions dealing with measurement and payment were around 50 percent for liking the current method or not. Farrell then reviewed the results. A majority of the respondents liked the current CSI specifications and format. Barry pointed out that the responses were compiled exactly as submitted, with no changes to the grammar or spelling. The number in front of each comment is a respondent number to help determine who made the comment.

Farrell said the purpose of the survey was a follow up from last year's Engineering Conference. At that time a survey was handed out to all attendees. Some of the responses indicated negativity toward the current specification format. This survey follows up and expands on that one. Findings indicate what people liked at that time, they still like. What they didn't like now is in the same area as at that time and that relates to the measurement and payment document, and how it is used and maintained. Farrell said he could continue to go through the results if the Committee so desired, but the packet provides good information. Farrell said basically everyone is still happy with what we are doing and how the specifications are presented.

Discussion points were:

- Jim said that some areas indicate a split opinion and he wondered what was going to be done to address those areas, keying on questions five, six, and seven. Referring to measurement and payment as a separate document being easy to use, Farrell said a lot of the people like having a separate document. The information can be adapted easier this way without working with special provisions. Farrell said personally he would like to see it part of the specification review process when coming to the Standards Committee. Comments indicated the Committee needed to do a better job of discussing measurement and payment during the process. Farrell said there is not much we can do without guidance from the Department on whether to put it back in the specification and make the designers write special provisions. Based on this survey it is about fifty-fifty. Darrell said based on that it doesn't seem to be worth the effort to put it back into the specifications. Farrell said it is hard to make that call based on only thirty something responses from UDOT and consultants. Barry pointed out that only three actually indicated putting it back into the specifications. The rest didn't specifically come out and say that.
- Mont commented that they discussed this at the AGC and it is also about fifty-fifty. He added that you can't satisfy everybody.

- Darrell asked Karl to comment. Karl said a lot of the comments would depend on how measurement and payment applies. He said he likes having a separate document. Darrell again commented about reviewing measurement and payment during the review process and amending the process to cover it. Barry said it is already on the submittal sheet. Farrell said it needs to be added to the end of the specification just for the review process.
- Farrell said it's frustrating when you don't get good a response.
- Karl said he likes the idea of a separate document, but there are parts of the document that would be easier to work with if in the specification. He highlighted incentives/disincentives, project estimates, and items that are included in the specifications as items that should be in the specification, not the measurement and payment document.
- Barry said they have already followed up with people on individual problems that were submitted.
- Farrell commented on the WordPerfect macro conversion to Word. He said it is taking longer than expected to figure out how to get that to work.

10. Standard Specifications 01571, Temporary Environmental Controls and 01574, Environmental Control Supervisor, (Agenda Item 10) – Presented by Terry Johnson.

Terry said they are having problems in that Contractors are leaving temporary erosion controls out after project completion. He said the specifications do not adequately address the maintenance of erosion control features during construction and removal at the end of construction.

Discussion points were:

- Discussion centered on wording of removal requirements. A new article will cover this requirement. Farrell suggested adding a 1.1C for removal of temporary erosion control measures.
- Referring to 3.3A, "Inspect earthwork..." Dave asked if that was the only thing to be looked at. He asked if this was for all earth disturbing activities. Dave said he considers pipe installation as earthwork. He said the current wording is narrowly worded. Terry agreed it was a good point.

Discussion continued with Section 01574. Terry said the penalty of \$500 is not sufficient to get the Contractors attention. He said region contacts suggested \$1000 per day after so many days and then to \$1500 per day after so many more days.

Discussion points were:

- Farrell pointed out that article 1.5A covers this.
- Mont said he didn't see any problems with a graduated scale.
- The web reference issue was highlighted.

Motion: Dave Nazare made a motion to approved Standard Specifications 01571 and 01574 with the changes as discussed. Seconded by Jason Davis. Passed unanimously.

Priority Three as specified on the submittal sheet.

11. Standard Specification 02896, Boundary Survey, (Agenda Item 11) – Presented by Jim Baird.

Jim said that in recent contracts the surveyor placed the right-of-way markers but didn't center punch the marker for an exact point because the specification didn't call for it. It is a standard survey procedure. This change adds that requirement.

Discussion points were:

- No significant discussion.

Motion: Tracy Conti made a motion to approved Standard Specification 02896 as presented. Seconded by Dave Nazare. Passed unanimously.

Priority Three as specified on the submittal sheet.

12. Standard Specification 13592, Roadway Weather Information system – Environmental Sensor Station (RWIS-ESS) and associated drawings, (Agenda Item 12) – Presented by Sam Sherman.

Sam said they have had some issues with recent installations. He said their proposal is to have state forces install the sensors because the Contractors don't have the qualifications or certifications needed to install them. The specification was rewritten to cover the desired requirements. Sam said new drawings were created.

Discussion points were:

- A comment highlighted the fact that each project is unique. The person thought that a special provision would better suit the situation. Jim said that a standard would be the best way to go to cover the average situation and that a special provision could be done to cover unique situations. Sam commented about regions creating their own unique special provisions.

- Referring to article 3.1C, Jason asked about who the schedule is submitted too. He said the item refers to the ITS Engineer and the Construction Engineer. Jason asked if the Construction Engineer is referring to Darrell or the region engineer. Dave said typically we refer to the Engineer. Barry said they changed that in the last version of the standard but this special provision changed it back.
- In reference to article 1.1, Dave said he thought the colon after “Site preparation” should be a comma. The way it reads now it is all site preparation. Sam said most of it will be. Dave said the way he reads it is that there are a bunch of things that need to be done.
- Dave said the reference to “others” in 2.4A needs to be clarified. The Contractor won’t know who “others” refers too. Sam said they were told they couldn’t put installed by state forces so they put others. Farrell asked who told him that. It didn’t come from the Standards Section. Farrell said he thought we would want to refer to UDOT. The Contractor needs to know who will be doing the installation so he knows how to bid the item.
- Referring to drawing AT 15, Jason asked about the statement “Engineer to verify that tower will be accessible for service when bent over.” What does this mean? Sam said the fence is so close that when the tower is folded down it extends over the fence and can’t be worked on. He said they have had to come back in to correct the problem.
- On AT 17, Jason asked if the reference to “Acorn Ground Rod” was to a proprietary item. Sam said their construction crew informed him that this is a standard item. Sam commented about the 10-foot ground rod and that it is difficult to install. He said has requested approval to change it.
- On AT 15, Farrell commented about the references to “Junction Box.” He said the other drawings refer to polymer junction boxes. Farrell said we have two current drawings, one for polymer concrete and one for just junction boxes that are plastic. Farrell said if you want polymer then it needs to be listed that way.
- On AT 16, Farrell asked about the reference in note 10 to “slight crown.” What is a slight crown?
- Jim asked Sam if he had enough information to work on the specification and drawings. Sam said he did. The item will be brought back to the next meeting. Jim said to list the item first on the agenda.

13. Review of Assignment/Action Log (Agenda Item 13)

Jim asked Barry to review the log and provide updates.

Discussion points were:

- Item 1, 800 Series drawings: Closed, remainder of drawings approved.
- Item 2, 09972 (Painting for Structural Steel), 09991 (Cleaning and Repainting Structural Steel), and 09992 (Cleaning and Overcoating Structural Steel): Approved, closed.
- Item 3, Rumble Strips: Item to be covered at the October meeting.
- Item 4, 00727 (Control of Work): The item was dropped at the request of Darrell. Darrell said they are working on 00727, 00725, and 00555. He said that during that process and in coordination with the region construction engineers they came to the conclusion that the specifications don't work well. He said they are not in a dictatorial role and have changed what the Region Construction Engineers (RCE) Committee does. They are now in charge of Construction specifications and work hand in hand with the Construction Division to get the best specifications. They are now in the process of reviewing the referenced specifications. Darrell said they are working on the second revision to 00555. Karl didn't think they would be ready before December.
- Item 5, Black Paint issue: Bob said Region 2 Maintenance originally introduced this based on their preference. He said subsequently that technique has been ground off, adding that he is not sure if they still have that same emphasis. Bob said he doesn't know where to go with it now. Jim said he thinks they ground it off and reapplied the white paint. Bob said they have not put the black paint back. Jim said he believed this was in their deference to the standard. Jim said Shana asked him two or three months ago about the status of this item. Bob said he thinks this item may not belong in his area. Jim said maybe they could have Stan do a little work on this. Jim said to list him for the action and he would check with Shana to see if she is still interested in the matter. Bob said he thinks it should go back to the Maintenance Quality Panel. Jim said he would ask Stan to do some research in the data base to look for places where we have the black paint and if there was an accident reduction. Jim said to list the item with a December target.
- Item 6, Standards Survey. Complete. Closed.
- Item 7, 00725 (Scope of Work): The item was dropped at the request of Darrell. Covered in Item 4 above. December.

- Item 8, 01284 (Prompt Payment): The item was dropped at the request of Darrell. Darrell said they are working with the AGC and are getting the new Civil Rights Manager involved. The new target is December.
 - Item 9, Painted Cattle Guard: The item was dropped from the agenda at the request of Bob. He said he wasn't sure what they are going to do. October for update.
 - Item 10, Standard Drawing GW 10 (Delineation Hardware): Approved, closed.
 - Item 11, Standard Specification 00555, Prosecution and Progress: The item was dropped at the request of Darrell. Covered in Item 4 above. December. Jim asked if these items could be tracked as one item.
 - Item 12, AASHTO's Guidelines for Geometric Design of Very Low-Volume Local Roads ADT (≤ 400): Jason said he would be making a presentation on this in September to the Association of Cities and Counties. He said he would say this is a guideline and if we vary from UDOT standards or AASHTO standards it would require a design exception. Jim asked if it was correct that if we get enough history of design exceptions as wanting to use a certain specification then we could come back some time in the future as a standard for local government projects. Jason said no, it was for all low volume local roads. Something should be ready for the October meeting.
 - Item 13, Technical Bulletin: The Bulletin was provided prior to publishing the last change. Closed.
 - Item 14, TC 17, Traffic Control Single Lane Closure Moving/Intermittent Operations and TC 18, Traffic Control Multi-Lane Closure Moving/Intermittent Operations: Discussed during the meeting. Back in October for approval.
14. Meeting Improvements (on-going agenda item) (Agenda Item 14). Jim asked if anything could be done to improve today's meeting.
- Jim said we need to do a better job discussing measurement and payment as covered earlier in the meeting. Farrell said they would make sure this is covered as part of each specification discussion.
15. Other Business

Changing Standard Specifications Into Region Special Provisions – Presented by Jason Davis.

- Farrell handed out a sheet covering the subject. Jason said the best example of this is the Survey specification where it was included in all items of work instead of paying separately.

- Jason said in discussions with the AGC he has made some commitments and the regions have modified specifications to go in a different direction because they don't agree with the direction. It has nothing to do with a better fit or a region requirement.
- Jason asked if the Committee wanted to make a specific assignment to look into a policy for use of special provisions. Karl said special provisions at the region level are still needed. Farrell said he understands that. Karl went on to say that a region wide preference might be something that needs to be looked at. One comment was if it is good for the region then make it good for everyone.
- Mont said at a meeting with the AGC a promise was made that someone in the headquarters would review for consistency, special provisions originating in a region. He asked if that was happening. Jim said not currently. Should it happen?
- Jim said what we are asking is, is there a process where we determine what we should do. How do we get to what should be our policy or process on the use of special provisions? He said right now, anybody who can write, can write a special provision and get it put in their job. There is no QC what so ever. Mont said that is a mistake, isn't it, to continue.
- Karl said there shouldn't be anyone more concerned than he is to make sure Contractors all have a level playing field when they bid a job. The idea is to make sure information is out there so the contract package clearly tells the Contractor what he is bidding. He said that is the focus of the issue here. If someone is taking a standard specification and putting an "S" on the end, hiding one little statement in there someplace it is a whole different issue from what we are trying to talk about. Karl said maybe these standard specials need to be looked at by Darrell or the region construction engineers.
- Jim said he is coming at it a little differently. He said he knows we have had special provisions written because of personal preference. In fact those specials have cost money. He said he wasn't sure those people who wrote those specials understood what was really going to happen.
- Not doubting that was true, but reading the handout, Karl said he would really be interested in specifics because the write up doesn't give enough information.
- Darrell said he understands why Region 2 wants to use this survey special provision. He said every time you go into negotiation for a change order that is one item you don't have to worry about because it is included in the current items already bid. Farrell said when the survey special came out he sent an e-mail to the other three regions, including Karl asking if they were having problems with the survey specification in change orders. None of them came back with any problems.

- Why is Region 2 having problems? Darrell said he can see both sides of the fence. Do we allow that to happen or not? Where do we draw the line on allowing special provisions?
- Jason commented that if it is working in three regions, why isn't it working in Region 2. Someone said it is preference. Karl said what Region 2 is doing could just as easily burn them, but it hasn't yet. He went on to say there could be arguments from the Contractor.
- Darrell asked if there should be a review process for special provisions. Mont said yes.
- Farrell said the thing that really gets him is this survey specification and the one that ITS brought in are rewrites of the whole specification. He said they should be modifications, delete the sections you don't want and put the new stuff in. The Contractor can see the changes easier and not have to read an entire specification to find which paragraph changed.
- Karl again said he is interested in specifics. Jason said the generalized statement was intended to create discussion. Karl said we have made a lot of progress through Barry's work in posting the special provisions on the web, getting control of the special provisions. Darrell concurred from a construction standpoint.
- Jason said he was bringing this up to see if this needs to be looked at or is it just a perception problem from his and Standards standpoint. If the rest of the group doesn't think it is a problem we can move forward.
- Darrell said they have now made the region construction engineers the approving entity for those special provisions rather than being written by others. All specifications before they come here that deal with construction issues goes through that group. Karl added that the focus of each region director might be different. He gave an example relating to Region 4, adding that it should be an issue.
- Mont didn't think that was the issue. He gave an example. Karl said in some cases when a designer wants a special provision he goes back to an earlier project and duplicates the special provision. Karl pointed out there was an error in putting the project together in relation to the example Mont gave.
- Jim commented that there didn't seem to be any other work that is needed on this.

Clear Zone Behind Barrier Curb - Presented by Jason Davis.

- Jason commented that someone (couldn't remember name) said barrier curb does not allow us the 18-inch clear zone behind the curb. Bob said there is no such thing as barrier curb anymore, adding that it went through this committee a long time ago. Jason said he would talk about it after the meeting.

Use of Current Standards - Presented by Bob Hull.

- Bob presented an item for informational purposes. He said they have been running into some circumstances where we have individuals or Project Managers who are using old drawings and standards and such. They are missing things that we have published. Bob said they have to go out there and deal with problems that have been created by not using the current standards. How do we address that dissemination of information?
- Barry said they have had this discussion over the last few months with Glenn Schulte. The discussion dealt with changes not getting down to the maintenance people because they don't have e-mail or an Internet connection. Barry said they are trying to work it out with additional e-mail to the supervisory level, emphasizing the need to get the information down to everyone. Bob said that is the issue. Bob added that it is costing more money to fix the problem than it would have been to use the current standard. It is because they don't have the information. Bob said he just wanted to point this out.

Motion made and approved to adjourn.

The next regular meeting of the Standards Committee has been scheduled for Thursday, October 30, 2003, at 8:00 a.m., in the 1st floor conference room of the Rampton Complex.

Approval of Minutes: The foregoing minutes were approved at a meeting of the Standards Committee held _____, 2003.

Assignment/Action Item Log (Updated August 28, 2003)

Date Initiated/Updated	Item #	Action	Assignments	Status	Target Date
June 27, 2002	1	Standard Drawing PV 8 (Rumble Strip)	Darrell to assign someone from Construction. Richard Miller from Maintenance. Fred Doebling. Betty Purdie. Robert Hull to head the group.	Open	October 2003 meeting
October 31, 2002					
December 19, 2002		Process being reviewed. Research looking into testing.	Robert Hull Stan Burns		
February 27, 2003		A policy is to be developed over the next several months.	Robert Hull Stan Burns		
April 24, 2003		No change			
June 26, 2003		No further updates. Target date changed.			
August 28, 2003		Progress continuing. To work with Research.			

Date Initiated/Updated	Item #	Action	Assignments	Status	Target Date
August 28, 2003	2	<p>Construction specifications combined into one tracking item.</p> <p>00727 (Control of Work). Wording of 1.6B & C (Contractor Cooperation) and 1.8 (Cooperation Between Contractors). Construction working with AGC on inputs. New review procedure established by Construction.</p> <p>00725 (Scope of Work). Construction to discuss wording with AGC and Region Engineers. Obtain inputs from Construction Engineers. Being reviewed based on new Construction procedure.</p> <p>00555 (Prosecution and Progress). Being reviewed based on new Construction procedure.</p>	Darrell	Open	December 2003 meeting

Date Initiated/Updated	Item #	Action	Assignments	Status	Target Date
Revisited from October 2001 and December 2001 Standards Meetings	3	Black Paint issue on lane striping. Review by Traffic Engineering Panel	Robert	Open	December 2003 meeting
October 31, 2002		Item to the Traffic Engineering Panel.	Robert		
December 19, 2002		Traffic Engineering Panel and Task Group working on issue.	Robert		
February 27, 2003		Update target date.	Robert		
April 24, 2003		Traffic Engineering Panel to discuss in July			
June 26, 2003		No change. Not due until August.			
August 28, 2003		Responsibility transferred for follow up.	Jim		
December 19, 2002 February 27, 2003	4	01284 (Prompt Payment) discussion delayed for further review by AGC.	Chuck Larson	Open	December 2003 meeting
April 24, 2003		Being reviewed by Construction.	Darrell Giannonatti		
June 26, 2003		No change. Not due until August.			
August 28, 2003		Discussing with AGC. Updating with new Civil Rights Manager			

Date Initiated/Updated	Item #	Action	Assignments	Status	Target Date
December 19, 2003	5	Painted Cattle Guard: With assistance from Research Division, Traffic and Safety to make recommendation.	Glenn Schulte John Leonard	Open	October 2003 meeting
February 27, 2003		No status.			
April 24, 2003		Traffic Engineering Panel to review			
June 26, 2003		No change. Not due until August.			
August 28, 2003		No change.			
April 24, 2003	6	Team to review AASHTO's <i>Guidelines for Geometric Design of Very Low-Volume Local Roads ADT (≤ 400)</i> for approval for use as well as Local Government projects.	Jason Davis	Open	October 2003 meeting
June 26, 2003		Further pursue the issue and present finding and recommendations.	Jason Davis		
August 28, 2003		Being worked. Still October meeting.			
June 26, 2003	7	Standard Drawing TC 17, Traffic Control Single Lane Closure Moving/Intermittent Operations and TC 18, Traffic Control Multi-Lane Closure Moving/Intermittent Operations. Review drawings and coordinate with Maintenance people prior to presentation for approval.	John Leonard	Open	October 2003 meeting
August 28, 2003		Traffic and Safety to get more information on the requirements for the second vehicle and usage by other states.			

Date Initiated/Updated	Item #	Action	Assignments	Status	Target Date
August 28, 2003	8	Traffic and Safety to modify Standard Drawing ST 5 in the future to include chevron painting details.	John Leonard	Open	Unknown
August 28, 2003	9	A new drawing depicting the four-legged intersection to be developed.	John Leonard	Open	Unknown
August 28, 2003	10	Standard Drawing GW 10 (Delineation Hardware). Following the meeting and prior to publication further discussion and drawing update took place.	Jim	Open	October 2003 meeting
August 28, 2003	11	Web page to be developed with a listing of all outside web links currently found in the Standard Specifications.	Barry	Open	As part of new spec book for 2004.
August 28, 2003	12	Pay reduction factors for concrete products to be modified.	Boyd Wheeler Bill Lawrence	Open	October 2003 meeting
August 28, 2003	13	Standard Specification 13592, Roadway Weather Information system – Environmental Sensor Station (RWIS-ESS) and associated drawings. To be updated based on meeting discussion.	Sam Sherman	Open	October 2003 meeting
August 28, 2003	14	Standard Drawing ST 4 (Crosswalks, Parking and Intersection Approaches) to be updated based on approval of ST 9.	John Leonard	Open	October 2003 meeting
August 28, 2003	15	Typical Sections in relation to DD series drawings to be updated.	Darren Bunker Steve Ogden	Open	October 2003 meeting

Closed Items From Last Meeting (August 28, 2003)					
Date Initiated/Updated	Prior Item #	Action	Assignments	Status	Target Date
June 27, 2002	1	Team to review Series 800 Standards prior to presentation to the Standards Committee	Research, Safety, Farrell, Clair, and Jason	Closed	Closed
August 29, 2002		Drawings that were not deleted to be looked at for modification and consolidation. Notes from deleted drawings to be considered for inclusion in remaining drawings or elsewhere.	Robert and Jason		
		Structures to look at 815-7 (Structure Geometrics Design Standards) and 815-8 (Railroad Clearance at Highway Overpass Structures).	Dave and Boyd		
October 31, 2002		Drawings to be completed for the December 19 meeting.			
December 19, 2002 February 27, 2003		Drawings still being worked. Task group to coordinate and update the drawings as required.	John Leonard		
April 24, 2003		Drawings still being reviewed.			
June 26, 2003		805-1, 810-5A, 815-2, 815-3A, 815-4, 815-7A, 815-7, and 815-8 approved. Remaining drawings to be brought back.	John Leonard		
		Address all Maintenance needs on drawing 805-3 prior to presentation for approval.	Sterling Davis		

June 26, 2003		Continued. Look into the use of chevrons in relation to safety and cost savings on drawing 825-1 prior to presentation for approval. Address cut slope issues on drawing 815-1 prior to presentation for approval	Robert Hull Dave Nazare		
August 28, 2003		Drawings approved.			
June 27, 2002 October 31, 2002 December 19, 2002 February 27, 2003 April 24, 2003 June 26, 2003 August 28, 2003	2	Review 09972 (Painting for Structural Steel), 09991 (Cleaning and Repainting Structural Steel), and 09992 (Cleaning and Overcoating Structural Steel) to clean up the specifications. Structures reviewing with Materials for proposed changes. The item will be shown with an August 2003 date. Structures to send letter to paint contractors. No change in status. Specifications approved.	Structures Boyd Wheeler Bill Lawrence Boyd Wheeler	Closed	Closed

October 31, 2002	6	The numbering system for specifications to be looked at as well as format. Questionnaire in the general packets for Engineering Conference.	Farrell Wright	Closed	Closed
December 19, 2002 February 27, 2003 April 24, 2003		Standards to put together an on-line survey to gather more information on Standard Specification format and numbering and Measurement & Payment Document issues	Farrell Wright Barry Axelrod		
June 26, 2003		Survey and web page still being developed. Target date changed to August.			
August 28, 2003		Survey posting complete. Analyzed and discussed.			
February 27, 2003	10	Standard Drawing GW 10 (Delineation Hardware). Research to look into the use of delineators and the impact on traffic.	Research	Closed	Closed
		Research also to look into standards common to rural states in relation to the MUTCD.			
		Coordinate changes within the Maintenance Division.	Sterling Davis		
April 24, 2003		No change			
June 26, 2003		Discussed but not approved.	Robert Hull		
August 28, 2003		Drawing approved			

June 26, 2003	13	Develop a technical bulletin advising all interested parties of the change to Standard Specification 01452, Profilograph and Smoothness.	Darrell Giannonatti or Project Development	Closed	Closed
August 28, 2003		Technical bulletin published	Tim		

Standards Committee Agenda Items Section

Submittal Sheets, Standard Specification Drafts, Standard Drawing Drafts, and other supporting data for the October 30, 2003 Standards Committee meeting follows.

No supporting items for the following agenda items.

- Item 3 Update on GW 10
- Item 5 Update on Rumble Strip Policy
- Item 6 Update on Painted Cattle Guard
- Item 7 Update on AASHTO's Guidelines for Geometric Design of
Very Low-Volume Local Roads
- Item 8 Information on Modification of Pay Reduction Factors For
Concrete Products

Standard Committee Submittal Sheet

Name of preparer: Sam Sherman, 887-3744
Title/Position of preparer: ITS & CVO Engineer
Specification/Drawing/Item Title: 13592
Specification/Drawing Number: AT 15,AT 16,AT 17
Date Process Started: 8-28-03 Date Process Completed: _____
Status: ' Approved ' Disapproved ' Sent Back For Review

Enter appropriate priority level: 3

(See last page for explanation) _____

Sheet not required on editorial or minor changes to standards.

NOTES:

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

Revised Standard Drawings AT15-17 and Specification 13592 to reflect more involvement by state forces to install the sensitive weather instrumentation and per recommendation from the August 28, 2003 Standard Committee Meeting.

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

Modified measurement and payment.

- C. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

- 1) TOC RWIS Manager, Ralph Patterson, in Person
- 2) ITS Electronics, John Butterworth, in Person
- 3) ATMS Maintenance, J.T. Dzatlik, in Person

Construction Engineers: None

Contractors: None

Suppliers:

1) Surface Systems, Inc., Rose Mooney, Phone

Consultants (as required):

1) TransCore, Blake Hansen, In Person

Others (as appropriate):

D. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.

None Anticipated. Reduced prices are anticipated at approx. \$10,000.

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

Not Applicable

3. Life cycle cost.

Not Applicable

E. Safety Impacts? None

F. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

The standard drawings have been adapted from the installation guides from the state contracted weather equipment provider. The drawings have been modified to include UDOT requirements for access, junction box details and fencing protection.

Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

Priority 1 Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised.

Priority 2 Upon posting, this impacts projects being advertised.

Priority 3 Upon posting, the approved standard takes effect two weeks later for projects being advertised.

SECTION 13592S

ROADWAY WEATHER INFORMATION SYSTEM - ENVIRONMENTAL SENSOR STATION (RWIS-ESS)

PART 1 GENERAL

1.1 SECTION INCLUDES

RWIS Site preparation: install buried conduit per industry standard and associated junction boxes with grounding rods, tower foundation, and fence installation per design plans or as directed by UDOT representative.

~~A. Materials and procedures for installing Roadway Weather Information System - Environmental Sensor Station (RWIS-ESS).~~

1.2 RELATED SECTIONS

A. Section 02324: Compaction

B. Section 02330: Embankment

C.A. Section 02776: Concrete Sidewalk, Median Filler, and Flatwork

D.B. Section 02821: Chain Link Fencing and Gates

E.C. Section 03055: Portland Cement Concrete

F.D. Section 03211: Reinforcing Steel and Welded Wire

G.E. Section 03310: Structural Concrete

H. Section 13553: ATMS Conduit

I. Section 13554: Polymer Concrete Junction Box

1.3 REFERENCES

A. NEC 250-1: National Electric Code

PART 2 PRODUCTS

2.1 POWER

- A. Use electrical components as listed and defined by the National Electric Code (NEC).
- B. Supply and install ~~a 30A breakered weatherproof disconnect per manufacturer's instructions in a manner not to encumber operation of the tower or sensors.~~ cConduit, ground rods, and junction boxes. Install in each conduit a detectable pull tape with (one foot) incremental measurement markings. Tensile strength will be 1200 ft lb.
- C. Install solar power array and connect with RPU per manufacturer's specifications.

2.2 RPU TOWER FOUNDATION AND SERVICE TOWER PAD

- A. Use Class AA (AE) concrete per Section 03055.

2.3 TOWER GROUNDING SYSTEM

- A. Wire: 32 strand, #210 weight, 7/16 inch tinned copper ground cable. ~~off each corner of the tower on top of concrete pad to a distance 10 ft away from the tower.~~
 - 1. ~~Ground Wire use #10 solid, bare, soft drawn, copper wire as specified. For all three legs, starting from the outside ground rod, clamp wire and run wire to the ground rod three feet from the tower. Clamp the wire to the ground rod. DO NOT cut the wire. Then, run the wire across the top of the concrete pad to the corner of the RWIS tower. Grounding wire to be attached to the tower to be installed by the Department.~~
- B. Ground Rod: 5/8 1/2 inch diameter 8+0 foot copper clad. Two per corner; one, 3 feet away and one, 10 feet away.
- C. ~~Ground AC disconnect to the nearest ground rod.~~

2.4 ENVIRONMENTAL SENSORS, REMOTE PROCESSING UNIT (RPU), COMMUNICATION EQUIPMENT, AND TOWER

- A. All sensors to be installed by the Department. ~~Environmental sensors, cabinet, remote processing unit (RPU), and tower are furnished by the Department. The environmental sensors may include, but are not limited to, the following:~~
 - 1. ~~Wind speed indicator~~

2. ~~Wind direction indicator~~
3. ~~Relative humidity sensor~~
4. ~~Air temperature sensor~~
5. ~~Precipitation detector~~
6. ~~Visibility sensor~~
7. ~~Multiple pavement sensors~~
8. ~~Sub-grade temperature probe~~
9. ~~Required communication modem for design specified communication method.~~

B. ~~Department furnished manufacturer's detailed installation instructions in addition to instructions shown in RWIS plan sheets.~~

2.6 FENCE AND GATE

- A. Follow ~~lower Department or UDOT~~ provided design specification.

PART 3 EXECUTION

3.1 GENERAL

- A. Conform to the requirements of the National Electric Code (NEC).
- B. ~~Tower site location and pavement sensor placement must be approved on site by the UDOT ITS Engineer at (801) 887-3744 or designee prior to construction. The Engineer approves tower site location staking and pavement sensor placement prior to construction.~~
- C. Provide ~~Engineer~~ a preliminary installation schedule ~~to the UDOT ITS Engineer specified in Part 3.1.B and UDOT construction Engineer and schedule a pre-installation meeting~~ 30 days prior to start of work.
- D. Pick up State-furnished materials at the following:
Utah Department of Transportation
Traffic Operations Center (TOC)
2060 South 2760 West
Salt Lake City, Utah 84104-4592
- E. Contact ~~the UDOT ITS Engineer at (801) 887-3744~~ ~~Engineer~~ seven calendar days before pick-up date.
- F. Install all State-furnished materials per manufacturer's instructions, ~~unless noted otherwise in these.~~

3.32 RPU TOWER FOUNDATION AND TOWER

- A. Follow Sections 03055 and 03211.
- B. Provide all necessary grading for a flat and level site.
- C. Finish all surface concrete with Ordinary Surface Finish per Section 03310.
- D. Do not weld conduit to tower. Follow manufacturer's installation instructions.
- E. Place the concrete directly into the excavation. Use minimum forming above ground.
- F. ~~RPU tower to be installed by the Department.~~ Install tower securely on foundation as indicated. Follow all manufacturer's installation instructions.

3.43 PAVEMENT SENSORS

- A. ~~To be installed by the Department.~~ Install all pavement and sub-grade sensors as indicated. Follow all manufacturer's installation instructions.
- B. ~~Manufacturer trained or certified personnel, manufacturer representative or designee oversees installation of pavement sensors.~~
- C. ~~Install all cabling between sensors and processing unit. Follow all manufacturer's installation instructions.~~

3.54 CABINET, PROCESSING UNIT

- A. ~~To be installed by the Department.~~ Install cabinet as indicated per manufacturer's installation instructions.

3.65 COMMUNICATION EQUIPMENT

- A. ~~To be installed by the Department.~~ Install all cabling between communication network equipment and modem at RPU. Follow all manufacturer's installation instructions.

3.6 FOUNDATION PAD

- A. ~~Install concrete maintenance pad per Section 02776.~~

3.7 FENCE AND GATE

- A. Furnish and install Chain Link Fence and Gate per Section 02821.
- B. Furnish and install 7 ~~foot~~ high Type IV fence, with barbed wire and arm, with 5 ~~foot~~ wide gate~~s~~.
- C. Orient fence gate~~s~~, and size the fence dimensions per manufacturer or Department specifications.
- ~~D. —Install anti-climb plating to tower as provided by manufacturer.~~

END OF SECTION

Information for the Measurement and Payment Document

Section 13592: Roadway Weather Information System/Environmental Sensor Station (RWIS-ESS)

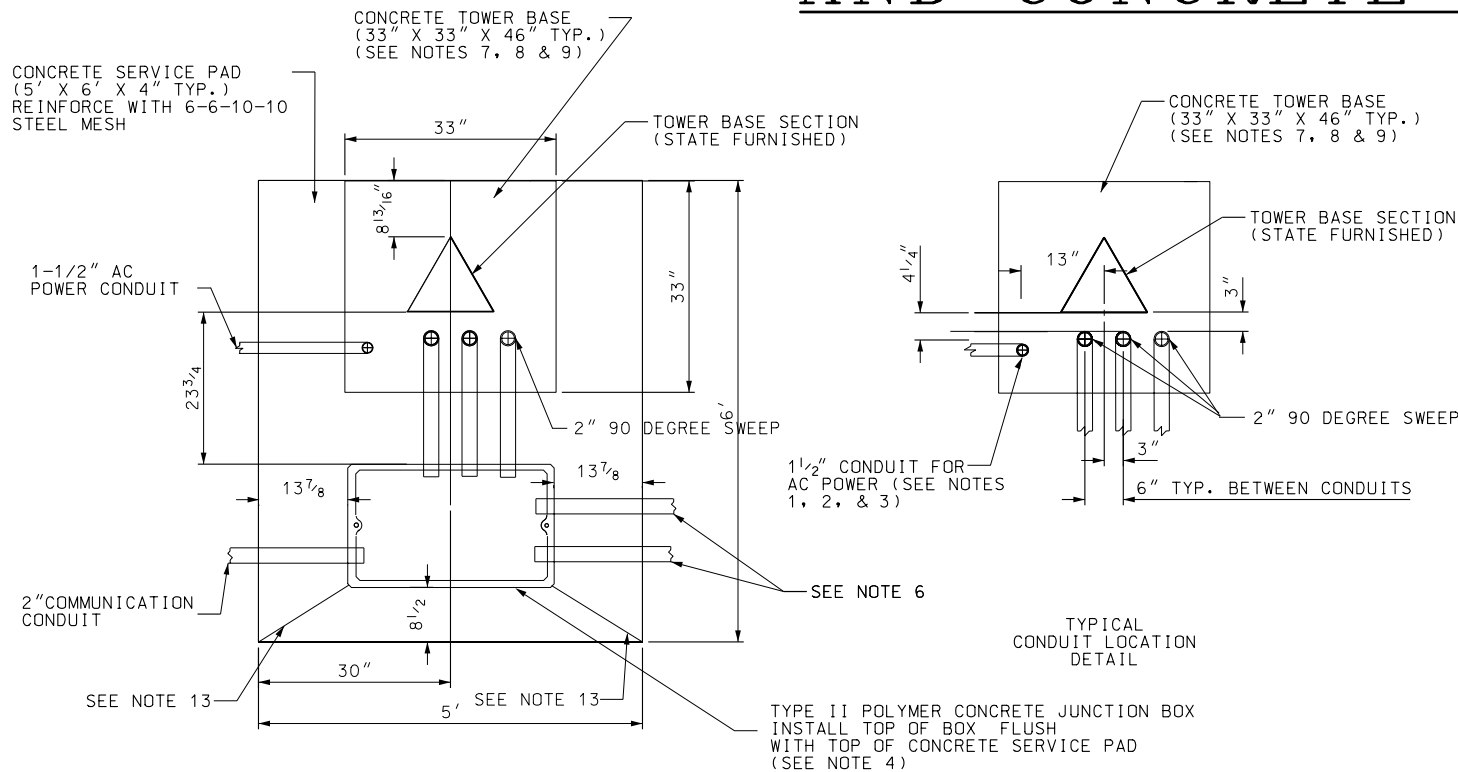
<u>#</u>	<u>135920010</u>	<u>Installation of State Furnished RWIS-ESS</u>	<u>Lump Sum</u>
<u>Includes all materials and workmanship to provide site preparation and installation of buried cable, polymer junction boxes with ground rods, tower foundation, and fence.</u>			

10-OCT-2003 DGN File: N:\Esd\Standard_Drawings\Imperial\Working\StandardsCommitteeFiles\ATI5.dgn

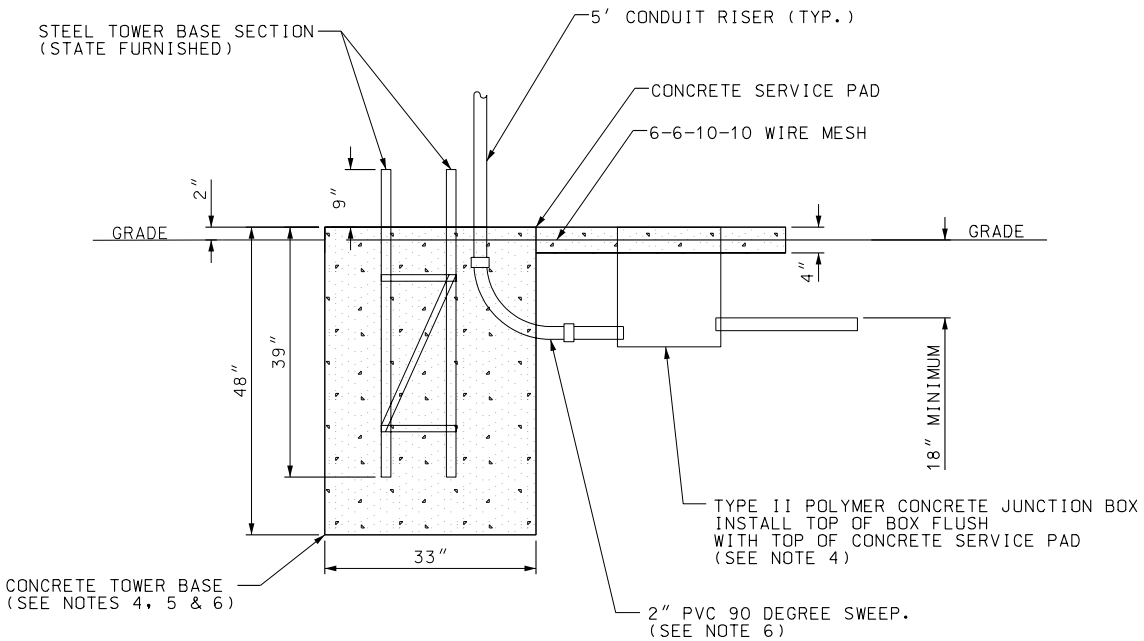


STD. DWG. NO.
AT 15

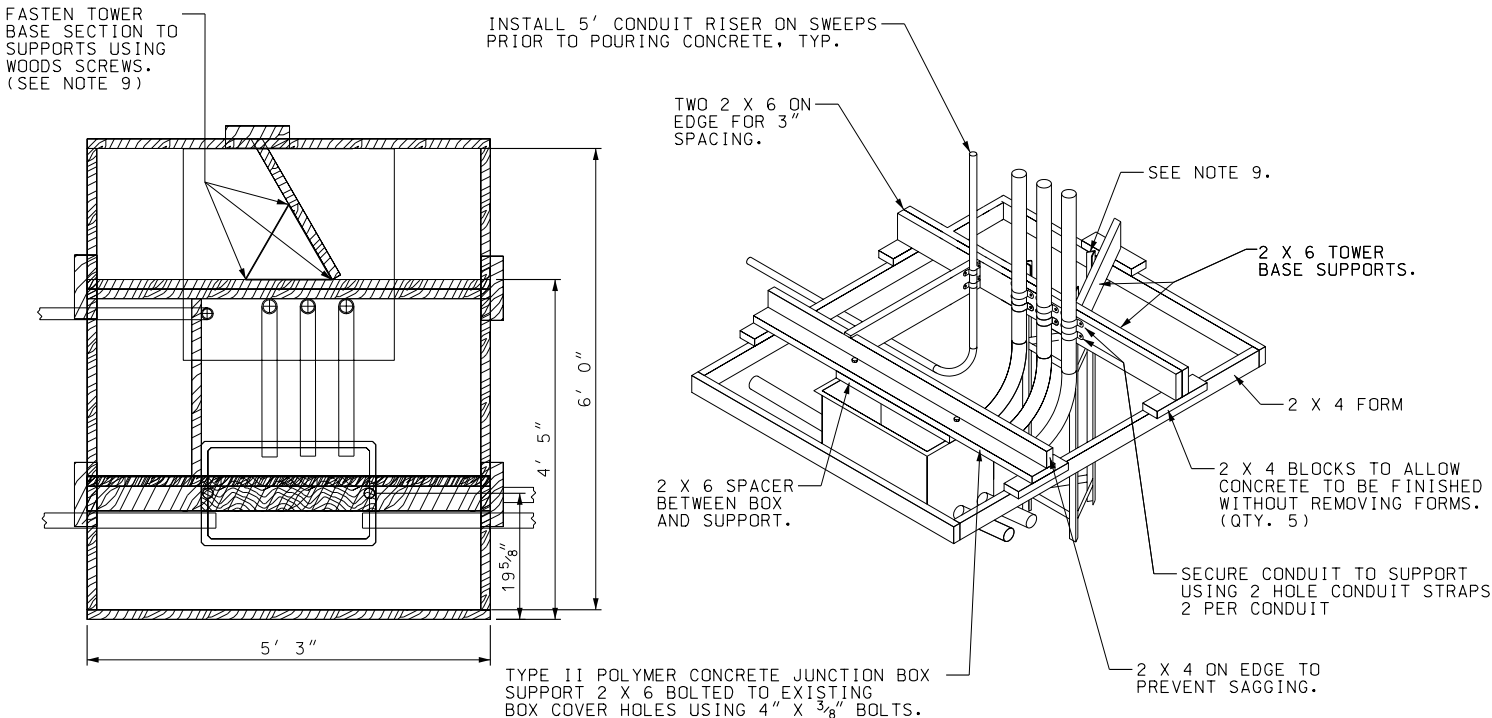
RPU TOWER BASE AND SERVICE PAD LAYOUT
AND CONCRETE FORMING DETAILS



RPU TOWER BASE &
SERVICE PAD INSTALLATION DETAIL



RPU TOWER BASE &
SERVICE PAD INSTALLATION DETAIL
(LEFT SIDE VIEW)

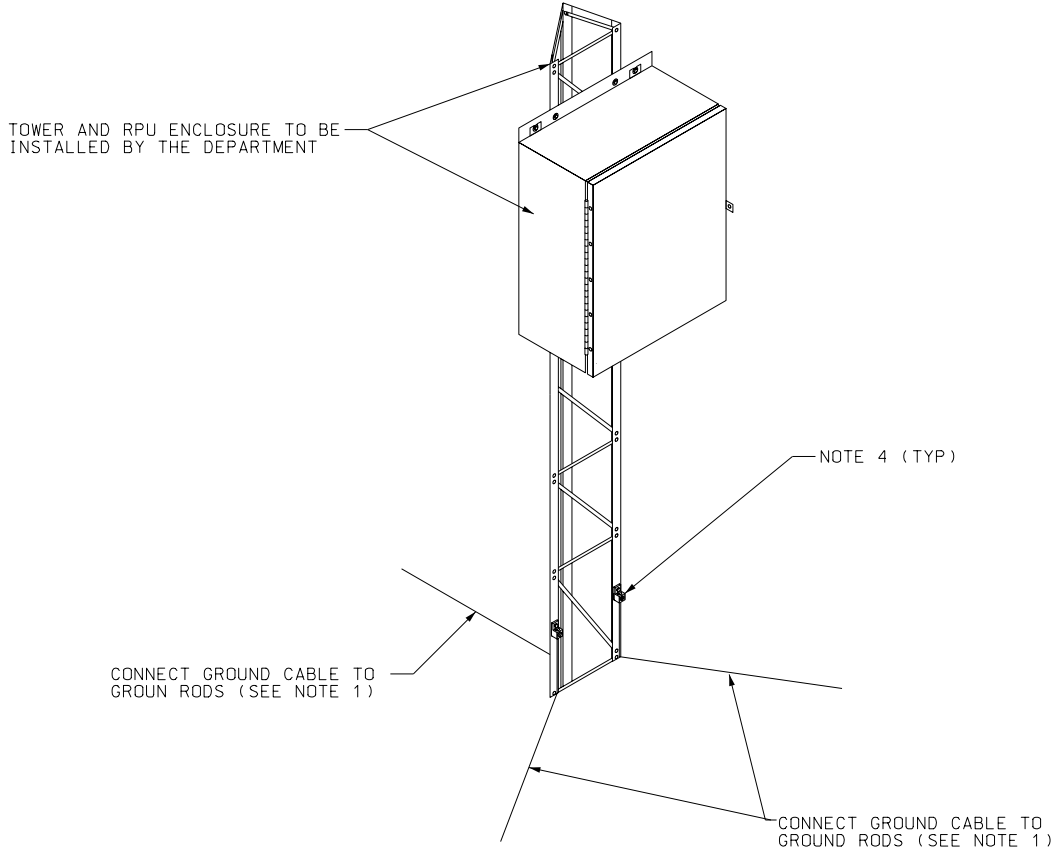


RPU TOWER BASE & SERVICE PAD CONCRETE FORM DETAIL

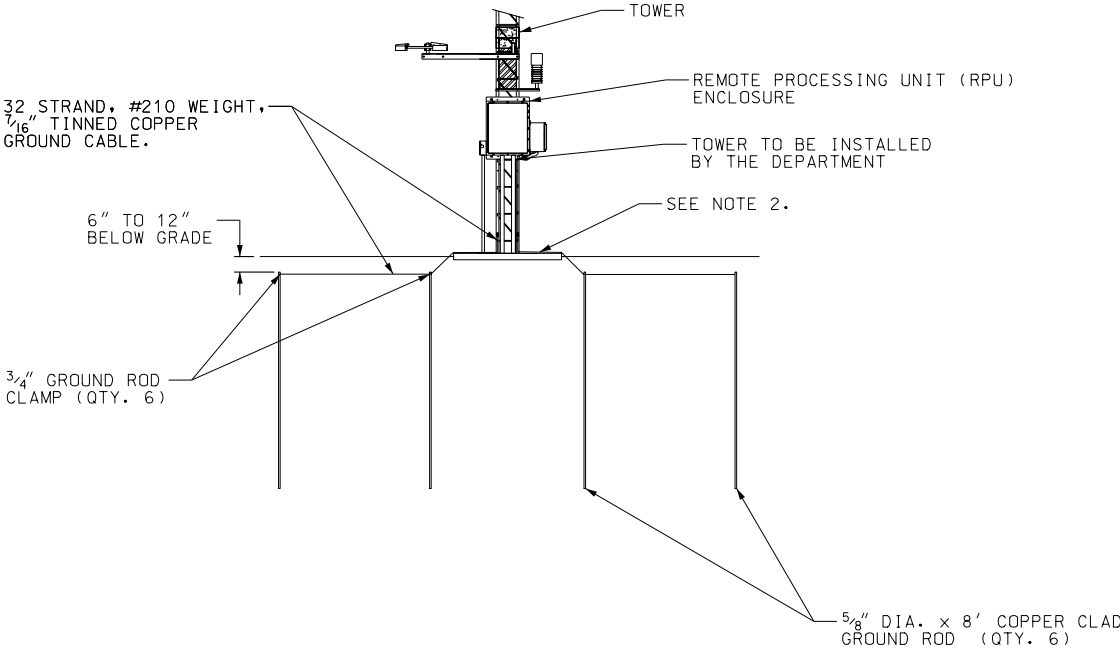
- NOTES:
1. USE SCHEDULE 40 PVC.CONDUIT
 2. STUB OUT 1 1/2" POWER SERVICE INTO TYPE I POLYMER CONCRETE JUNCTION BOX.
 3. CONDUIT LOCATIONS SHOWN ARE FOR A SQUARE D TYPE D SAFETY SWITCH, CATALOG # D221NRB.
 4. INSTALL JUNCTION BOXES AS PER STD DWG #AT 7.
 5. INSTALL ALL CONDUITS IN TOWER BASE CONCRETE TO PERMIT CONTINUATION TO RPU ENCLOSURE.
 6. STUB OUT 2" CONDUIT FROM POLYMER CONCRETE JUNCTION BOX TO BEYOND SERVICE PAD FOR SENSOR CABLES. ORIENT TOWARD NEXT JUNCTION BOX AS APPROPRIATE.
 7. CONCRETE, MINIMUM CLASS AA(AE).
 8. ALL SENSOR CABLES INSTALLED TO POLYMER CONCRETE JUNCTION BOX AND PULLED THROUGH 2" 90 DEGREE SWEEP INTO RPU ENCLOSURE.
 9. LEVEL THE TOP OF THE TOWER BASE SECTION TO ASSURE A STRAIGHT AND PLUMB TOWER INSTALLATION. THE TOP OF THE TOWER BASE MUST BE 9" ABOVE THE CONCRETE PAD.
 10. FINISH CONCRETE TO DRAIN WATER.
 11. THE FORM DETAIL SHOWN IS TYPICAL FOR A FLAT SURFACE INSTALLATION. MODIFY AS APPROPRIATE FOR FIELD CONDITIONS.
 12. CONTRACTOR IS RESPONSIBLE FOR INCORRECTLY INSTALLED OR DAMAGED STATE FURNISHED EQUIPMENT AND MATERIALS.
 13. WHEN FINISHING CONCRETE SCORE A LINE FROM THE CORNER OF THE BOX TO THE CORNER OF THE CONCRETE FOR AN EXPANSION JOINT.

REVISONS		1 10/09/03 S.S. NEW SHEET		NO.		DATE		APPR.		REMARKS	
UTAH DEPARTMENT OF TRANSPORTATION											
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION											
SALT LAKE CITY, UTAH											
RECOMMENDED FOR APPROVAL											
CHAIRMAN STANDARDS COMMITTEE											
OCT. 30, 2003 DATE											
DEPUTY DIRECTOR											
OCT. 30, 2003 DATE											
RPU TOWER BASE AND SERVICE PAD LAYOUT											
STANDARD DRAWING TITLE											
STD. DWG. NO.											
AT 16											

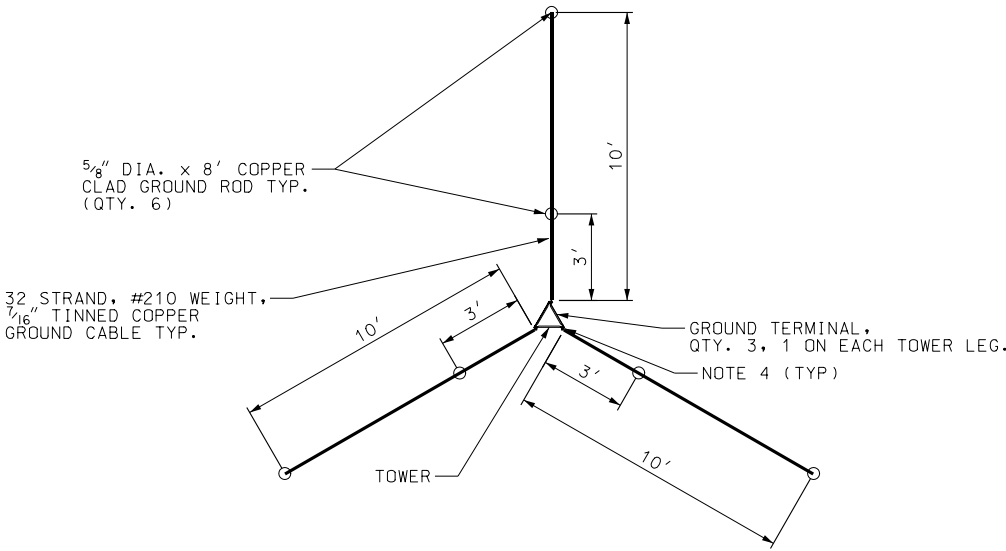
GROUND ROD INSTALLATION AND TOWER GROUNDING DETAIL



GROUND CABLE
TERMINATION DETAIL



GROUND ROD
INSTALLATION DETAIL
(PROFILE VIEW)



GROUND ROD
INSTALLATION DETAIL
(PLAN VIEW)

- NOTES:
- 1. PLACE GROUND CABLES ON THE TOP CONCRETE PAD.
 - 2. ANCHOR GROUND CABLES FLAT AGAINST CONCRETE PAD WITH SUITABLE CLAMPS/ANCHORS. LEAVE EXCESS WIRE TO BE ATTACHED TO TOWER BY THE DEPARTMENT.
 - 3. DUCT SEAL UNDERGROUND CONDUIT OPENING AFTER INSTALLING GROUND WIRE.
 - 4. ON ALL THREE LEGS, CONTRACTOR TO INSTALL GROUNDING WIRE AND RODS. COIL AND LEAVE 10 FEET OF WIRE FOR INSTALLATION BY THE DEPARTMENT.

REVISONS		1 10/09/03 S.S. NEW SHEET									
		NO.	DATE	APPR.	DATE	NO.	DATE	APPR.	DATE	NO.	DATE
UTAH DEPARTMENT OF TRANSPORTATION											
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION											
SALT LAKE CITY, UTAH											
RECOMMENDED FOR APPROVAL											
CHAIRMAN STANDARDS COMMITTEE											
APPROVED											
DEPUTY DIRECTOR											
REMARKS											
STANDARD DRAWING TITLE											
GROUND ROD INSTALLATION AND TOWER GROUNDING											
STD. DWG. NO.											
AT 17											

Standard Committee Submittal Sheet

Name of preparer: John Leonard
Title/Position of preparer: Operations Engineer
Specification/Drawing/Item Title: SCHOOL SPEED LIMIT ASSEMBLY
Specification/Drawing Number: SN-2
Date Process Started: _____ Date Process Completed: _____
Status: ' Approved ' Disapproved ' Sent Back For Review

Enter appropriate priority level: 3

(See last page for explanation) _____

Sheet not required on editorial or minor changes to standards.

NOTES:

1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on their web page, (<http://www.udot.utah.gov/esd/specbook/StandardsCommittee.htm>).
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

The new School Zone Manual has been published by the Department, and is applicable to all jurisdictions, not just State facilities. The Manual refers to this drawing for the design standard for the school speed limit assembly. The drawing has been updated with minor changes. The intent of the drawing is the same. The flashing beacons are changed to LED lights. The color of the sign is changing to fluorescent yellow green. The sign layout is now in compliance with the MUTCD, and the notes were edited for clarity. The name of the Drawing was also changed to more accurately reflect the content.

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

No change.

- C. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

The changes are minimal. The changes were evaluated and approved by the Traffic Engineering Panel.

Construction Engineers

Contractors

Suppliers

Consultants (as required)

Others (as appropriate)

- D. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.

This change does not affect the current practice, so there should no increase seen in the installation costs. However, the change to LED lights will significantly reduce the operational costs, resulting in a long-term decrease in costs.

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

The change to LED lights will significantly reduce the energy costs. The heads last much longer reducing the frequency for crews to change light bulbs. This will result in a long-term decrease in costs.

3. Life cycle cost.

The change to LED lights will significantly reduce the operational costs, both for energy and maintenance, resulting in a long-term decrease in costs.

- E. Safety Impacts?

Safety will be enhanced with the change in color of the sign from yellow to fluorescent yellow green.

- F. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

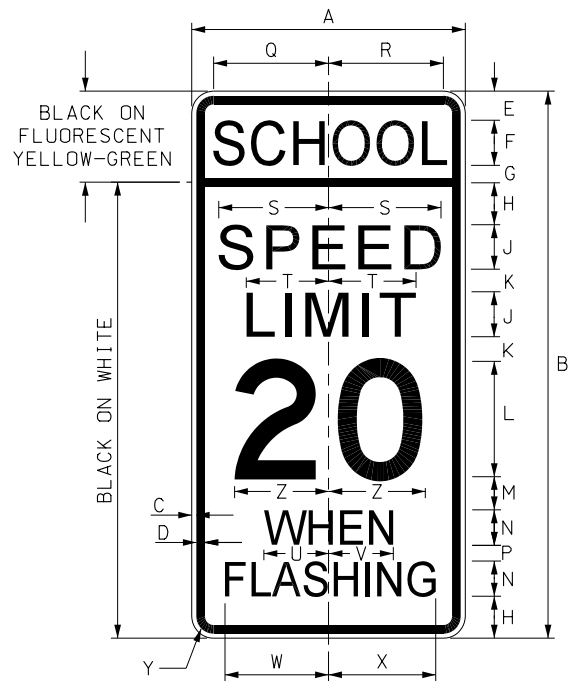
These signs are installed throughout the State, on all roads regardless of jurisdiction. This Drawing ensures uniformity.

Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

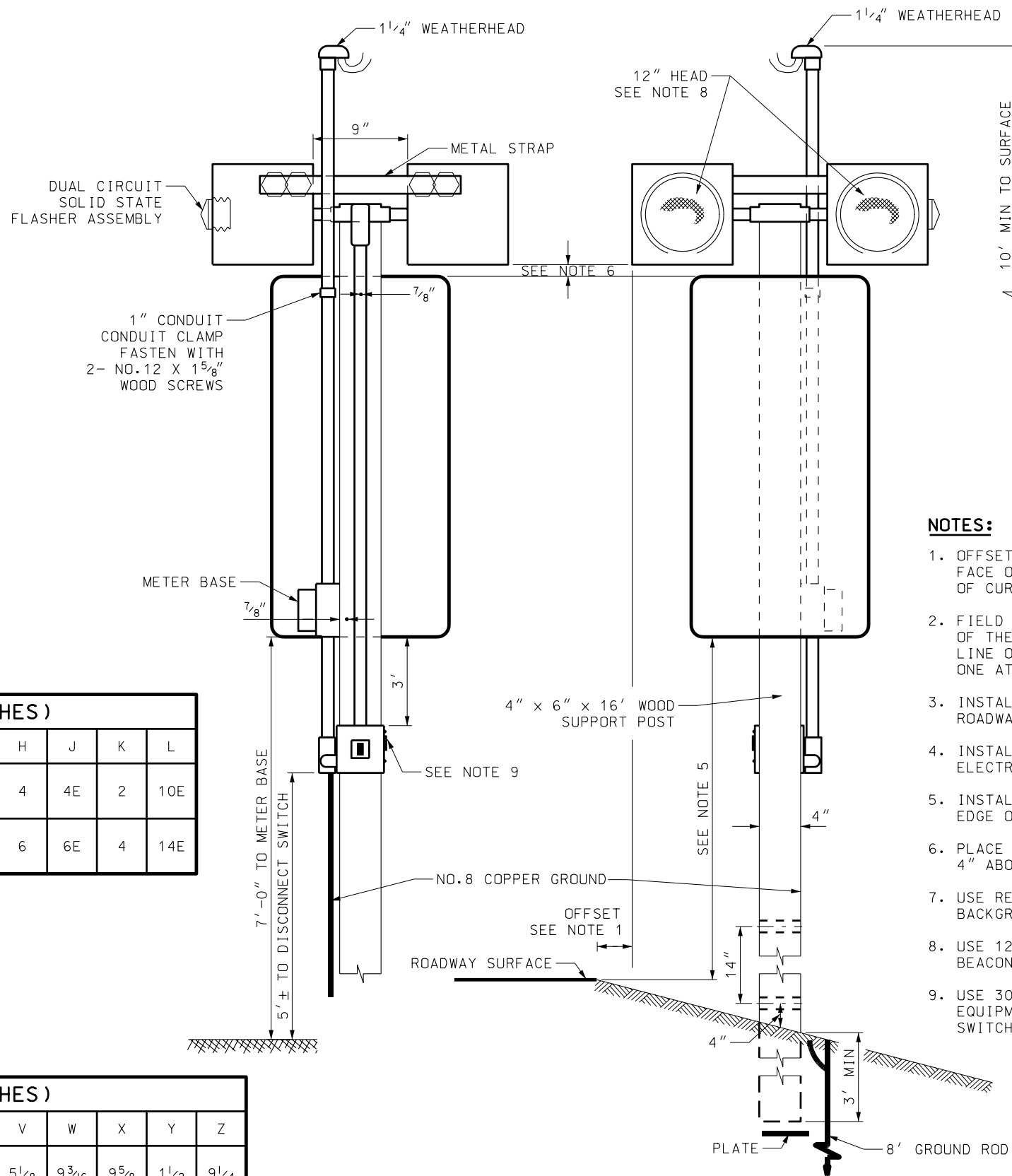
- | | |
|------------|---|
| Priority 1 | Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised. |
| Priority 2 | Upon posting, this impacts projects being advertised. |
| Priority 3 | Upon posting, the approved standard takes effect two weeks later for projects being advertised. |

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SIGN	DIMENSION (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
CONVENTIONAL ROAD	24	48	3/8	5/8	2 1/2	4D	1 1/2	4	4E	2	10E
SPECIAL	36	72	5/8	7/8	3 3/4	6D	2 1/4	6	6E	4	14E

SIGN	DIMENSION (INCHES)											
	M	N	P	R	S	T	U	V	W	X	Y	Z
CONVENTIONAL ROAD	3	2 1/2 D	2	10 1/4	9 9/16	7 7/16	5 3/16	5 1/8	9 3/16	9 5/8	1 1/2	9 1/4
SPECIAL	4	4D	2	15 3/8	14 3/8	11	6 15/16	6 13/16	12 1/4	12 7/8	2 1/4	13 7/8



NOTES:

1. OFFSET SIGN ASSEMBLY A MINIMUM OF 1.5 FT. FROM FACE OF CURB OR 6 FT. FROM TRAVELED WAY IN ABSENCE OF CURB.
2. FIELD DRILL TWO 1 1/2" DIAMETER HOLES IN THE CENTER OF THE POST. DRILL PERPENDICULAR TO THE CENTER LINE OF THE ROAD. PLACE ONE HOLE AT 4 INCHES AND ONE AT 18 INCHES ABOVE GROUND LINE.
3. INSTALL FACE OF SIGN AT 90° ANGLE TO THE EDGE OF ROADWAY.
4. INSTALL POWER SUPPLY IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.
5. INSTALL SIGN 7 FEET AS MEASURED FROM THE NEAREST EDGE OF ROADWAY SURFACE TO BOTTOM OF SIGN.
6. PLACE BOTTOM OF SPEED LIMIT SIGN BEACON ASSEMBLY 4" ABOVE TOP OF SIGN.
7. USE RETROREFLECTIVE SIGN SHEETING FOR ALL BACKGROUNDS COLOR AS NOTED.
8. USE 12" LED YELLOW BEACONS FOR SPEED LIMIT SIGN BEACONS.
9. USE 30 AMP WEATHERPROOF DISCONNECT SWITCH EQUIPMENT. GROUND NEUTRAL TO THE FRAME AT THE SWITCH.

REVISIONS				UTAH DEPARTMENT OF TRANSPORTATION				SCHOOL SPEED LIMIT ASSEMBLY			
1	10/31/02	G.S.	UPDATED THE BREAKAWAY HOLE HEIGHT REQUIREMENT TO AASHTO STANDARD IN NOTE 2 AND DETAIL	STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION				SALT LAKE CITY, UTAH			
2	10/14/03	G.L.	UPDATED DRAWING.	RECOMMENDED FOR APPROVAL				CHAIRMAN STANDARDS COMMITTEE			
				OCT.30.2003				DEPUTY DIRECTOR			
				DATE				DATE			
				APPR.				STANDARD DRAWING TITLE			
				NO.				SN 2			
				DATE				STD DWG			
				REMARKS							

Standard Committee Submittal Sheet

Name of preparer: John Leonard
Title/Position of preparer: Operations Engineer
Specification/Drawing/Item Title: OVERHEAD SCHOOL SPEED LIMIT ASSEMBLY
Specification/Drawing Number: SN-3
Date Process Started: _____ Date Process Completed: _____
Status: ' Approved ' Disapproved ' Sent Back For Review

Enter appropriate priority level: 3

(See last page for explanation) _____

Sheet not required on editorial or minor changes to standards.

NOTES:

1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on their web page, (<http://www.udot.utah.gov/esd/specbook/StandardsCommittee.htm>).
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3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

The new School Zone Manual has been published by the Department, and is applicable to all jurisdictions, not just State facilities. The Manual refers to this drawing for the design standard for overhead school speed limit assembly. The drawing has been updated with minor changes. The intent of the drawing is the same. The flashing beacons are changed to LED lights. The Drawing is adding two additional flashing beacons on the upright pole. This change is reflecting the practice in the field, so it will not change how the assemblies are currently being installed. The color of the sign is changing to fluorescent yellow green. The sign layout has been improved, and the notes were edited for clarity. Finally, backing plates were added to the overhead flashing beacons. This change was the result of customer complaints and field operational reviews by the Regions. The name of the Drawing was also changed to more accurately reflect the content.

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

No change.

- C. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

The changes are minimal. The changes were evaluated and approved by the Traffic Engineering Panel.

Construction Engineers

Contractors

Suppliers

Consultants (as required)

Others (as appropriate)

- D. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.

There will be a slight increase in installation cost with the addition of the two backing plates on the two overhead flashing beacons. The Drawing now shows extra beacons required on the upright pole. However, most all of the existing installations are in Region Two, and the Region has been installing the flashing beacons on the upright pole. This change does not affect the current practice, so there should no increase seen in the installation costs. However, the change to LED lights will significantly reduce the operational costs, resulting in a long-term decrease in costs.

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

The change to LED lights will significantly reduce the energy costs. The heads last much longer reducing the frequency for crews to change light bulbs. This will result in a long-term decrease in costs.

3. Life cycle cost.

The change to LED lights will significantly reduce the operational costs, both for energy and maintenance, resulting in a long-term decrease in costs.

- E. Safety Impacts?

Safety will be enhanced with the change in color of the sign from yellow to fluorescent yellow green, and the addition of the flashing beacons on the side mount. Currently, most all of these installations are in Region Two, and the Region has been installed the flashing beacons on the upright pole.

- F. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

Currently, most all of these installations are in Region Two, and the Region has been installed the flashing beacons on the upright pole.

Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

- | | |
|------------|---|
| Priority 1 | Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised. |
| Priority 2 | Upon posting, this impacts projects being advertised. |
| Priority 3 | Upon posting, the approved standard takes effect two weeks later for projects being advertised. |

Standard Committee Submittal Sheet

Name of preparer: Steve Ogden

Title/Position of preparer: Region 4 Project Design Engineer

Specification/Drawing/Item Title: Geometric Design for Freeways (Roadway), Rural Multi Lane Highways Other Than Freeways, Rural Two Lane Highways, and Frontage and Access Roads (Under 50 ADT)

Specification/Drawing Number: DD 4, DD 11, DD 12, and DD 13

Date Process Started: 6/1/2003

Date Process Completed: 10/1/2003

Status: ' ☒ Approved ' ☐ Disapproved ' ☐ Sent Back For Review

Enter appropriate priority level:

(See last page for explanation) _____

Sheet not required on editorial or minor changes to standards.

NOTES:

1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on their web page. (<http://www.udot.utah.gov/esd/specbook/StandardsCommittee.htm>)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

The change is recommended to make standard drawings better match how roadways are being designed. Design techniques and software have evolved, but our typical section standard drawings have stayed the same. Design software, Design reference material (AASHTO) and survey equipment relate to constant slopes rather than constant distances.

This change also includes the granular borrow layer in the pavement thickness. When taking this into consideration the traditional 10:1 cut ditch was replaced with the same constant slope from the pavement to the bottom of the granular borrow.

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

There won't be changes to the Measurement and Payment document associated with the proposed changes.

- C. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

I contacted all of the following people via E-mail. I sent an E-mail with a modified standard drawing for them to review and comment on. I received comments back through E-mail and telephone. There is strong support for the changes to these standard drawings. There were comments received on modifying recommended changes to meet the needs of as many stakeholders as possible.

Construction Engineers

Karl Verhaeren
Jim McConnell

Contractors

None

Suppliers

N/A

Consultants (as required)

None

Geotechnical

Darin Sjoblom
Leslie Heppler

Preconstruction

Clark Mackay
David Schwartz
Ed Rock
Shane Marshall
Steve Niebergall
Rick Torgerson

Materials

Tim Biel
Larry Gay

Maintenance

Hugh Kirkham
Richard Miller
Robert Dowell
Scott Munson
Sterling Davis

Traffic and Safety

John Leonard

Environmental

Terry Johnson

Engineering Technology Services

Darren Bunker

D. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.

It's hard to say how these changes will affect average bid item prices. I can see the potential for the average bid item price for surveying to drop. Roadway Excavation may drop slightly due to the elimination of the grade break for the traditional 10 foot cut ditch on a 10:1 slope.

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

From a materials standpoint the proposed sections will perform better, because the granular borrow layer is being addressed and design in a way that it can drain properly if water enters the layer.

Surveying will be easier and hopefully less expensive with the proposed changes.

3. Life cycle cost. Unchanged

E. Safety Impacts?

The proposed changes meet all of the safety requirements set forth in the AASHTO Roadside Design Guide.

- F. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

I don't know of any past reviews associated with the proposed changes.

Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

- | | |
|------------|---|
| Priority 1 | Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised. |
| Priority 2 | Upon posting, this impacts projects being advertised. |
| Priority 3 | Upon posting, the approved standard takes effect two weeks later for projects being advertised. |

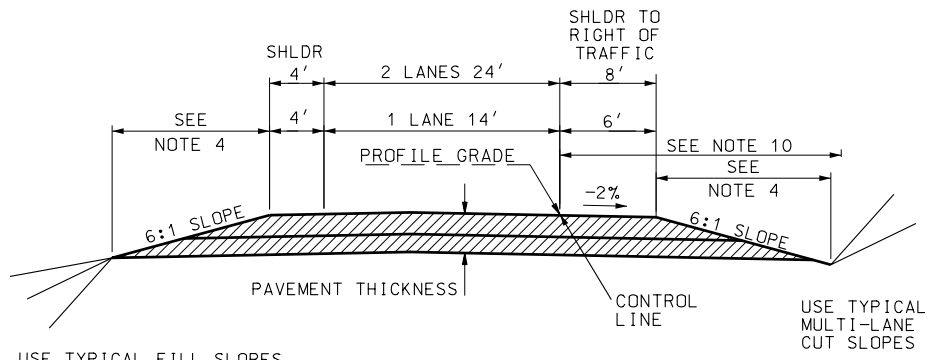
[illegible]

TYPICAL FILL SLOPES

TYPICAL SECTION ON CURVE

TYPICAL SECTION ON TANGENT

TYPICAL CUT SLOPES

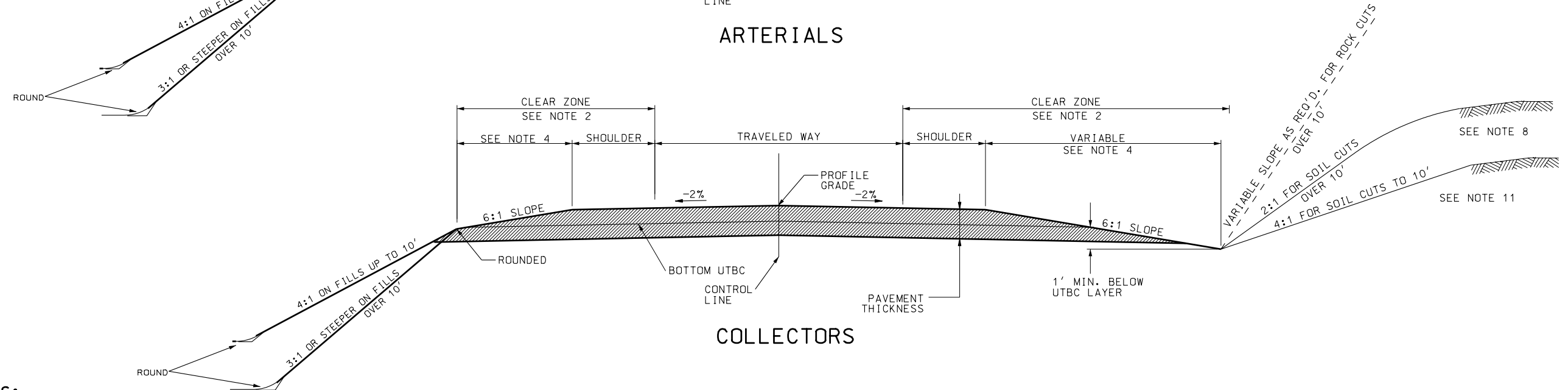


TYPICAL RAMP

- ## NOTES:
1. USE THE CURRENT EDITION OF AASHTO A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR DESIGN OF ROADWAY ELEMENTS.
 2. USE THE CURRENT EDITION OF AASHTO ROADSIDE DESIGN GUIDE FOR CLEAR ZONE REQUIREMENTS. PROVIDE A MINIMUM 30' CLEAR ZONE.
 3. STANDARDS SHOWN ARE RECOMMENDED VALUES. EXCEED STANDARDS IF CONDITIONS PERMIT.
 4. IN CUT AND FILL CONDITIONS MAINTAIN A CONSTANT SLOPE FROM THE EDGE OF THE PAVEMENT TO THE CLEAR ZONE. MAINTAIN A MINIMUM OF ONE FOOT VERTICAL DISTANCE FROM THE BOTTOM OF THE UTBC LAYER TO THE BOTTOM OF THE CUT DITCH OR PROVIDE OTHER MEASURES TO ADEQUATELY DRAIN ALL PAVEMENT THICKNESS LAYERS.
 5. PROVIDE BACKSLOPE ROUNDING FOR ALL CUTS STEEPER THAN 4:1 AS PER ROUNDING DETAIL, STD DWG DD 2.
 6. TRANSITION FROM FLAT TO STEEPER CUT AND FILL SLOPES IN SUFFICIENT DISTANCE TO PROVIDE A NATURAL PLEASING APPEARANCE.
 7. PAVEMENT THICKNESS CONSISTS OF HARD SURFACING, UTBC AND GRANULAR BORROW (IF USED).
 8. INSTALL SURFACE DITCH (OPTIONAL) WHEN SHEET FLOW DRAINAGE IS TOWARDS CUT SLOPE. DRAIN SURFACE DITCH TO NATURAL DRAINAGE OR ROADSIDE DITCH. PROVIDE OTHER MEASURES TO PREVENT ERODING CUT SLOPES IF SURFACE DITCH IS OMITTED.
 9. SEE STD DWG DD 2 FOR TYPICAL SECTION ON DITCH FLARING AND BENCHED SLOPE.
 10. DESIGN SPEED CHANGES THROUGHOUT LENGTH OF RAMP. USE APPLICABLE CLEAR ZONE.
 11. USE A 12' MINIMUM OUTSIDE SHOULDER WHEN HEAVY TRUCK TRAFFIC EXCEEDS 250 DDHV.
 12. RANGE OF SUPERELEVATION IS THE PAVED WIDTH.
 13. THE SLOPES SHOWN FOR CUT AND FILL HEIGHTS ARE SUGGESTED VALUES. SLOPES MAY DEVIATE FROM THESE SUGGESTED VALUES TO MEET PROJECT SPECIFIC REQUIREMENTS.

GEOMETRIC DESIGN FOR FREEWAYS (ROADWAY)	STD DWG				
	DD 4				
	STANDARD DRAWING TITLE				
	RECOMMENDED FOR APPROVAL				
	CHAIRMAN STANDARDS COMMITTEE APPROVED	OCT. 30, 2003 DATE			
	DEPUTY DIRECTOR	OCT. 30, 2003 DATE			
	UTAH DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION SALT LAKE CITY, UTAH				
	REVISIONS 1 10/30/03 S.O. MULTI-LANE DETAIL MODIFIED, NOTES UPDATED				





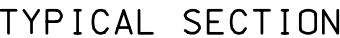
COLLECTORS

1. USE CURRENT EDITION OF THE AASHTO AASHTO A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR DESIGN OF ROADWAY ELEMENTS.
2. USE THE CURRENT EDITION OF AASHTO ROADSIDE DESIGN GUIDE FOR CLEAR ZONE REQUIREMENTS. CLEAR ZONE MAY INCLUDE FILL SLOPES OR CUT SLOPES OF 4:1 OR FLATTER.
3. STANDARDS SHOWN ARE RECOMMENDED VALUES. EXCEED STANDARDS IF CONDITIONS PERMIT.
4. IN FILL CONDITIONS MAINTAIN A CONSTANT SLOPE FROM THE EDGE OF THE PAVEMENT TO THE CLEAR ZONE. IN CUT CONDITIONS MAINTAIN A CONSTANT SLOPE FROM THE EDGE OF THE PAVEMENT TO THE BOTTOM OF THE GRANULAR BORROW LAYER OR PROVIDE OTHER MEASURES TO ADEQUATELY DRAIN ALL PAVEMENT THICKNESS LAYERS. MAINTAIN A MINIMUM OF ONE FOOT VERTICAL DISTANCE FROM THE BOTTOM OF THE UTBC LAYER TO THE BOTTOM OF THE CUT DITCH. THERE MAY BE CUT FORESLOPES AND BACKSLOPES IN THE CLEAR ZONE.
5. PROVIDE BACKSLOPE ROUNDING FOR ALL CUTS STEEPER THAN 4:1 AS PER ROUNDING DETAIL, STD DWG DD-2.
6. TRANSITION FROM FLAT TO STEEPER CUT AND FILL SLOPES IN SUFFICIENT DISTANCE TO PROVIDE A NATURAL PLEASING APPEARANCE.
7. PAVEMENT THICKNESS CONSISTS OF HARD SURFACING, UTBC AND GRANULAR BORROW (IF USED).
8. INSTALL SURFACE DITCH (OPTIONAL) WHEN SHEET FLOW DRAINAGE IS TOWARDS C DRAIN SURFACE DITCH TO NATURAL DRAINAGE OR ROADSIDE DITCH. PROVIDE OT MEASURES TO PREVENT ERODING CUT SLOPES IF SURFACE DITCH IS OMITTED.
9. SEE STD DWG DD-4 FOR TYPICAL DETAILS FOR SECTION ON CURVE AND SECTION ON TANGENT. SEE STD DWG DD-2 FOR TYPICAL SECTIONS ON DITCH FLARING AND BENCHED SLOPE.
10. USE A MINIMUM 0.3 PERCENT PROFILE GRADE THROUGHOUT CUT OR CURBED SECTIONS. LEVEL GRADES PERMITTED ON FILL SECTIONS.
11. THE SLOPES SHOWN FOR CUT AND FILL HEIGHTS ARE SUGGESTED VALUES. SLOPES MAY DEViate FROM THESE SUGGESTED VALUES TO MEET PROJECT SPECIFIC REQUIREMENTS.
12. RANGE OF SUPERELEVATION IS THE PAVED WIDTH.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

STD DWG
DD 12

RECOMMENDED FOR APPROVAL	OCT. 30, 2003 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED	OCT. 30, 2003 DATE
DEPUTY DIRECTOR	



1. USE THE CURRENT EDITION OF AASHTO A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR DESIGN OF ROADWAY ELEMENTS.
2. USE THE CURRENT EDITION OF AASHTO ROADSIDE DESIGN GUIDE FOR CLEAR ZONE REQUIREMENTS. CLEAR ZONE MAY INCLUDE FILL SLOPES OR CUT SLOPES OF 6:1 OR FLATTER.
3. STANDARDS SHOWN ARE RECOMMENDED VALUES. EXCEED STANDARDS IF CONDITIONS PERMIT.
4. IN FILL CONDITIONS MAINTAIN A CONSTANT SLOPE FROM THE EDGE OF THE FINISHED SURFACE TO THE CLEAR ZONE. IN CUT CONDITIONS MAINTAIN A CONSTANT SLOPE FROM THE EDGE OF THE FINISHED SURFACE TO THE BOTTOM OF THE GRANULAR BORROW LAYER OR PROVIDE OTHER MEASURES TO ADEQUATELY DRAIN ALL PAVEMENT THICKNESS LAYERS. MAINTAIN A MINIMUM OF ONE FOOT VERTICAL DISTANCE FROM THE BOTTOM OF THE UTBC LAYER TO THE BOTTOM OF THE CUT DITCH. THERE MAY BE CUT FORESLOPES AND BACKSLOPES IN THE CLEAR ZONE.
5. PROVIDE BACKSLOPE ROUNDING FOR ALL CUTS STEEPER THAN 4:1 AS PER ROUNDING DETAIL, STD DWG DD-2.
6. TRANSITION FROM FLAT TO STEEPER CUT AND FILL SLOPES IN SUFFICIENT DISTANCE TO PROVIDE A NATURAL PLEASING APPEARANCE.
7. PAVEMENT THICKNESS CONSISTS OF HARD SURFACING, UTBC AND GRANULAR BORROW (IF USED).
8. INSTALL SURFACE DITCH (OPTIONAL) WHEN SHEET FLOW DRAINAGE IS TOWARDS CUT SLOPE. DRAIN SURFACE DITCH TO NATURAL DRAINAGE OR ROADSIDE DITCH. PROVIDE OTHER MEASURES TO PREVENT ERODING CUT SLOPES IF SURFACE DITCH IS OMITTED.
9. SEE STD DWG DD-4 FOR TYPICAL DETAILS FOR SECTION ON CURVE AND SECTION ON TANGENT. SEE STD DWG DD-2 FOR TYPICAL SECTION ON DITCH FLARING AND BENCHED SLOPE.
10. DESIGN FRONTAGE ROAD WITH A MINIMUM TURNING RADIUS OF 60 FEET AT INTERSECTIONS. A TURNING RADIUS OF 50 FEET MAY BE USED WHERE NO REGULAR LARGE VEHICLE MOVEMENTS ARE EXPECTED.
11. THE SLOPES SHOWN FOR CUT AND FILL HEIGHTS ARE SUGGESTED VALUES. SLOPES MAY DEViate FROM THESE SUGGESTED VALUES TO MEET PROJECT SPECIFIC REQUIREMENTS.
12. RANGE OF SUPERELEVATION IS THE PAVED WIDTH.

[illegible]

Standard Committee Submittal Sheet

Name of preparer: Thomas LeHolm

Title/Position of preparer: Contract, Estimates/Agreements Manager

Specification/Drawing/Item Title: 00120 – Instructions to Bidders

Specification/Drawing Number: _____

Date Process Started: 1/03

Date Process Completed: 9/03

Status: ☒ Approved ☐ Disapproved ☐ Sent Back For Review

Enter appropriate priority level: 3

(See last page for explanation) _____

Sheet not required on editorial or minor changes to standards.

NOTES:

1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on their web page.
(<http://www.udot.utah.gov/esd/specbook/StandardsCommittee.htm>)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

Changes are due to the implementation of our new Electronic Bidding System and also, procedural changes were brought in line with the corresponding Policies & Procedure.

Changes were made to facilitate the new Electronic Bidding System and updates to procedural changes made to corresponding Policies & Procedures.

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

Not applicable

- C. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

Construction Engineers

Contractors

AGC

Suppliers

Consultants (as required)

Others (as appropriate)

Prequalification Board Secretary

PDBS Project Manager

Deputy Construction Engineers

- D. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.

Not Applicable

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

3. Life cycle cost.

- E. Safety Impacts?

Not applicable

- F. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

Not applicable

Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

- | | |
|------------|---|
| Priority 1 | Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised. |
| Priority 2 | Upon posting, this impacts projects being advertised. |
| Priority 3 | Upon posting, the approved standard takes effect two weeks later for projects being advertised. |

SECTION 00120

INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

1.1 PREQUALIFICATION OF BIDDERS

- A. Applies to all projects where the Department Engineer's advertised Estimate is greater than or equal to \$500,000.
- B. Provide experience information on the "Contractor's Application for Prequalification" ~~form~~ and a confidential financial statement ~~certified~~ attested to by a certified public accountant.
 - 1. Include a complete report of the bidder's financial resources and liabilities, equipment, ~~past record~~ work history, and personnel. Department establishes prequalification amount and work classification.
 - 2. Allow a minimum of 10 days for Department approval of the "Contractor's Application for Prequalification": and financial statements to assure acceptance of a valid bid.
- C. Renew Prequalify prequalification at least a minimum of once a year.
 - 1. The Department may change the prequalification amount during that period upon the submission of an application and additional favorable reports or upon evidence of unsatisfactory reports or performance.
 - 2. The prequalification amount limits bidding to individual contracts of a given size or for a particular type of work.
- ~~D. If bid exceeds prequalification amount, including work in progress, Contract may not be awarded.~~

1.2 ~~REQUEST FOR~~ BIDDING DOCUMENTS

- A. Prequalified bidders must ~~purchase~~ acquire and submit all proposals in the identical name used on their prequalification statement, or in accordance with a filed affidavit of change in firm name or personnel.
- B. Bidders must ~~make a written or verbal request to the Construction Division to receive~~ reference the UDOT Website to acquire bidding documents.

- ~~1. Include a form entitled "Status of Work Under Contract" in the bidding documents. Show on the form the status of all work under contract and being prosecuted by the bidder both in and outside the State of Utah as of the date of the bidding proposal.~~
- ~~2. Complete, properly execute, and include the form in the bid proposal.~~
- ~~3. The Department declares Bid Proposals non responsive if the Contractor's "Status of Work Under Contract" form:~~
 - ~~a. Is not included in the bid proposal.~~
 - ~~b. Does not show the sum of the amount of uncompleted work, both in and outside the State of Utah.~~
 - ~~c. Shows that the estimate of the amount of work to be bid upon exceeds the amount for which the Contractor is prequalified.~~

1.3 JOINT VENTURE BIDDING

- A. Prior to submitting a joint proposal on a single project, and at least 4 working days before the bid opening, submit a letter of intent to the Department's Prequalification Board Secretary at least 4 working days before the bid opening indicating the precise name of the joint venture and the designated administrative partner. The Department will consolidate individual prequalification amounts for the joint venture bid.

1.4 CONTENTS OF BID PROPOSAL

- A. Contents:
 - ~~1. The~~ 1 Location and description of the contemplated construction.
 - ~~2. The~~ 2 Estimated quantities.
 - ~~3. A~~ 3 Schedule of unit bid items.
 4. The time in which the work must be completed.
 - ~~5. The~~ 4 Amount of the proposal guarantee.
 6. The date, time and place of the opening of proposals.
 7. DBE requirements, as required.
 8. Mandatory Pre-Bid Conference, as required.
- B. The Department considers papers bound with or attached all forms associated to the Bid Proposal as a required part of the Proposal, ~~and does not detach or alter the documents when the Proposal is submitted.~~
- ~~C. The Construction Division considers the plans, supplemental specifications, specifications and other documents that accompany the Bid Proposal as part of the Proposal whether attached or not, and they need not be returned as a part of the Bid Proposal.~~

1.5 ISSUANCE ACCEPTANCE OF BID PROPOSALS

- A. The Department reserves the right to refuse ~~to issue~~ a Bid Proposal ~~or award a Contract to a bidder~~ for any or all of the following reasons:
1. Lack of or insufficient amount of prequalification or unauthorized work classification.
 2. Uncompleted work under contract that the Department determines will hinder or prevent the prompt completion of additional work if awarded.
 3. Failure to pay or settle claims.
 4. Failure to comply with any qualification regulations.
 5. Default under previous contracts.
 6. Unsatisfactory performance on previous or current Contract(s)
 7. Debarment by the Department or the Federal Government.
 8. Serious misconduct that adversely affects the ability to perform future work.
 9. Failure to reimburse for monies owed on any previously awarded Department contracts including contracts where the prospective bidder was a party in a joint venture, which failed to reimburse the Department.
 10. Bid Guarantee received after date and time specified.
 11. Non-attendance to a mandatory pre-bid meeting.
 12. Proposal received after date and time for the opening of bids.
 13. DBE non-compliance.
 14. Not submitted using UDOT's current EBS program.
- B. If the Department refuses to issue a Bid Proposal for any of the foregoing reasons, bidder may appeal in writing to the UDOT Deputy Director.
1. Specify the basis for the appeal in the written request.
 2. The Deputy Director may schedule either an informal or formal hearing.

1.6 INTERPRETATION OF QUANTITIES IN BID PROPOSAL

- A. Proposal quantities are estimates used for comparison and may be increased, decreased, or ~~be~~ eliminated in their entirety. Department pays for actual work performed and accepted, and materials furnished.

1.7 EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS AND WORK SITE

- A. Examine proposed work site and all documents before submitting a Bid Proposal.
1. Bidder is responsible for all site conditions that should have been discovered had a reasonable site investigation been performed.
 2. The Department considers submitting a Bid Proposal as conclusive evidence the bidder knows the conditions to be encountered in performing the work and the requirements of the proposed Contract.

- B. All Department boring logs and other records of subsurface investigations are available for information purposes only and are not substitutes for bidder's own investigation, interpretation, and judgment. It is understood such information was The Department obtained and used this information for Department for design and estimating purposes only.
- C. Bidder is permitted to converse with Department personnel knowledgeable of the project, plans, specifications, materials sites, or conditions generally prevailing in the area of the proposed work to aid in pre-bid investigations.
1. Bidder conducts independent investigation, including a visit to the site of work-site.
 2. The Engineer is available by appointment.
- D. The Department is bound only by written statements, or representations, descriptions of conditions and work. No oral explanations or instructions are binding.
- E. To request explanations of the written proposal documents, contact the Engineer 14 days prior to bid opening to allow a reply before proposal submission. The Department responds to written requests from prospective bidders by certified letter or electronic communications before the specified time for opening proposals.
- F. Bidder acknowledges that he/she has investigated the nature and location of the work and knows the general and local conditions that can affect the work or its cost, including but not limited to:
1. Conditions bearing upon transportation, disposal, handling, and storage of materials.
 2. The availability of labor, water, electric power, and roads.
 3. Uncertainties of weather, river stages, irrigation channel flow, lake and reservoir levels, or similar physical conditions of the ground.
 4. The type of equipment and facilities needed preliminary to and during work performance.
- G. The character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is ascertainable from an inspection of the site, as well as from the drawings and specifications and all exploratory work made available by the Department.
- H. Failure to take the actions described and acknowledged in this Article Section ("Examination of Plans, Specifications, Special Provisions and Work Site") does not relieve the Contractor of the responsibility for estimating the difficulty and cost of successfully performing the work, or from proceeding to successfully perform the work without additional cost to the Department.

1.8 UDOT ELECTRONIC BID SYSTEM

- A. Obtain UDOT's newest version of the Electronic Bid System (EBS) from the UDOT website: www.udot.utah.gov/index.php?m=c&tid=317.
- ~~1. Obtain software free of charge when purchasing plans and specifications for submitting a bid.~~
 - ~~2. Contact the UDOT Construction Division at (801) 965-4346 or (801) 965-4344 for Contractor ID and EBS training. Training will be scheduled the week prior to the bid opening.~~
- B. Prepare and electronically submit bid Proposals using the Department's current Electronic Bid System prior to the specified opening date and time for bid.
- ~~1. Specify a unit price in figures for each pay item for which a quantity is given.~~
 - ~~2. The Electronic Bid System calculates the product of the respective unit prices, sub-totals and the total bid. Complete all electronic bid documents specified on the "Bid Submission Check List and Forms".~~
- C. When the Proposal permits a choice (alternate items) to be made, indicate the choice in the Electronic Bid System. The program will not permit an additional choice.
- D. ~~Save the bid to a diskette using the Departments Electronic Bid System. Also print Bid Report using the Electronic Bid System. Electronic bid documents until project has been awarded.~~
- ~~1. The signed, printed Bid Report is the Contractor's official bid. Follow all Standard Specification requirements for the preparation of a bid.~~
 - ~~2. If there are any differences between the data on the diskette and the printed Bid Report, the Department changes the electronic data to match the printed Bid Report.~~
- ~~E. Properly executed proposals consist of: Diskette, Bid Report, and all required forms printed from the Electronic Bid System Software.~~
- E.F. A representative of the bidder authorized to execute bid proposals signs the Bid Report signature page in ink. Submit bid Guarantee using the current version of EBS. Apparent low bidder will deliver original guarantee if in the form of cashier's or certified check within 3 working days of bid opening.
- GF. Confirm receipt of addenda.
- HG. Provide the name and address of the individual signing the Proposal as well as the following names and addresses, as applicable.

Type of Bidder	Names and Office Addresses Required
Individual	Individual and Post Office address
Partnership	Each Member of the Partnership and each Post office address
Joint Venture	Each Member or officer of Firms represented and each post office address
Corporation	Corporation Name and corporate address

~~H.~~ By signing the Bid Report (electronically or manually), bidders certify they understand and are in compliance with all ~~provisions of this Section, article, [Non-Collusive Bidding Certification], and article, "Certification Regarding Debarment, Suspension, and Other Responsibility Matters—Primary Covered Transactions"~~ contract special provisions.

1.9 IRREGULAR BID PROPOSALS

- A. The Department will ~~considers~~ a Bid Proposal irregular and ~~rejects~~ the Bid Proposal as non-responsive if:
1. ~~It is in a format other than electronic format, or if any part is detached, altered, or incomplete. The Proposal is incomplete or in a format other than the newest version of the electronic bid system.~~
 2. ~~It~~ e Contains unauthorized additions, conditional or alternate bids, or irregularities that make the Bid Proposal incomplete, indefinite, or ambiguous.
 3. ~~It~~ i Includes added ~~p~~ Provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.
 - a. This does not exclude a bid proposal limiting the maximum gross amount of awards acceptable to any one bidder at any one bid letting.
 - b. Department selects awards.
 4. ~~It Does not~~ contains a unit prices ~~that are not typed or completed in ink, or are not legible for each pay item listed and the amount for each lump sum item, except in the case of authorized alternate pay items.~~
 5. ~~It does not contain a unit price for each pay item listed and the amount for each lump sum item, except in the case of authorized alternate pay items. Unsigned or not properly signed (electronically or manually).~~
 6. ~~It contains changes in the unit prices such as erasures, strikeouts, and whiteouts that are not initialed in ink.~~
 7. ~~It is not properly signed.~~
 8. ~~It has a~~ A bid bond guarantee that is not submitted in accordance with Section 1.10, Proposal Guarantees.
 - a. ~~Submitted on a form that is not furnished by the Department.~~

- b. ~~Not properly signed.~~
- 97. ~~It Does not~~ contains a "Status of Work Under Contract" ~~standard form for contractors who are prequalified for less than Unlimited if required, reflecting the contractor's current prequalification status or:~~
 - a. ~~Which is~~ incomplete and improperly executed.
 - b. Indicates the sum of the amount of **all** uncompleted work, plus the estimate of the amount of work to be bid upon, exceeds the amount for which the Contractor is prequalified.
- 108. Any of the unit bid prices are significantly unbalanced to the potential detriment of the Department. The Department may require written justification for the basis of the unit prices before making a decision as to whether the bid is irregular.
- 149. The receipt of Addenda is not acknowledged.
- 1210. ~~It Proposal~~ does not comply with conditions of current special provision for certification of Affirmative Action (DBE).
- 11. Manually submitted diskette is bland or unreadable.
- 12. Surety Company is not listed in Department of Treasury Circular 570.

1.10 PROPOSAL GUARANTY ~~YES~~ EES

- A. ~~The Department will not consider a Bid Proposal unless it is accompanied by a A proposal guaranty guaranty~~ in the form of a certified check, cashier's check or ~~Surety 2000 guaranty bond guaranty bond~~ for not less than 5 percent of the total amount of the bid made payable to the Utah Department of Transportation and issued from a surety company listed on the Department of Treasury Circular 570.
- B. ~~Use the proposal guaranty bond form included in the Bid Proposal.~~
 - 1. Use the current version of the UDOT EBS program.
 - 2. Apparent low bidder will deliver proposal guaranty in the form of cashier's or certified check within 3 days of bid opening.

1.11 ELECTRONIC DELIVERY OF BID PROPOSALS

- A. ~~Place Bid Proposals in a sealed envelope plainly marked to indicate a Bid Proposal. Include on envelope the project number, bid opening date, submitting contractor, and company address. Electronically transmit the Bid Proposal prior to the time specified in the Notice to Contractor.~~
- B. ~~Address envelope to: Engineer for Construction, 4501 South 2700 West, Salt Lake City, UT, 84114-8220. A manually submitted bid will take precedence over an electronically submitted bid.~~

~~C. File the Bid Proposal before the time and at the place specified in the Advertisement.~~

~~D. Bid Proposals received after the time specified for opening are returned unopened.~~

1.12 WITHDRAWAL OR REVISION OF BID PROPOSALS

- A. ~~Prior to the 2pm advertised Bid Proposal bid opening date, a bid proposal~~ may be withdrawn ~~or revised after receipt by the Department.~~
- B. Provide the request for withdrawal ~~or revision~~ to the Department in writing ~~or a telephone call followed by documented electronic communications to include a company authorized signature and the UDOT Contractor ID, or a telephone call followed by documented electronic communications to include a company authorized signature and the UDOT Contractor ID~~ before the time set for opening bid proposals.

1.13 COMBINATION OR CONDITIONAL BID PROPOSALS

- A. Bid Proposals may be issued for projects in combination or separately.
1. Bid Proposals may be submitted either on the combination or on separate units of the combination.
 2. The award of combination bid proposals or separate bid proposals are made to the advantage of the Department.
 3. The Department will not consider combination bid proposals other than those specifically set up in the Bid Proposal.
 4. The Department writes separate contracts for each individual project included in the combination.
- B. The Department considers conditional bid proposals only when specified in the advertisement.

1.14 PUBLIC OPENING OF BID PROPOSALS

- A. Bid Proposals ~~will be downloaded from the third party repository and are publicly~~ opened ~~and read publicly~~ at the time ~~and place~~ indicated in the advertisement.

1.15 DISQUALIFICATION OF BIDDERS

- A. Department disqualifies a bidder and rejects a Bid Proposal for ~~one or both~~ any of the following:
1. More than one Proposal for the same work from an individual, firm, or corporation under the same or different names.
 2. Evidence of collusion among bidders. Collusion participants are not recognized as bidders for future work until they are reinstated as a qualified bidder.

1.16 NON-COLLUSIVE BIDDING CERTIFICATION

- A. By submitting this Bid Proposal, each bidder and each person signing on behalf of any bidder certifies as to its own organization, under penalty of perjury, that to the best of their knowledge and belief:
1. The prices in this Bid Proposal have been arrived at independently without collusion, consultation, communication, or agreement with any other bidder or with any competitor for the purpose of restricting competition.
 2. Unless required by law, the prices that have been quoted in this bid proposal have not been and will not be knowingly disclosed by the bidder, directly or indirectly, to any other bidder or competitor before opening of Bid Proposals.
 3. No attempt has been made or will be made by the bidder to induce any other person, partnership, or corporation to submit or not to submit a Bid Proposal for the purpose of restricting competition.
 4. The signers of the Bid Proposal will tender to the Department a sworn statement that the named Contractor(s) has not, whether directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action to restrain free competitive bidding in connection with this Proposal.
- B. The Department considers no a Bid Proposal for award, nor makes any award where there has not been compliance with this article, paragraph A, except as follows:
1. If the bidder cannot make the foregoing certification, the bidder must furnish with the bid proposal a signed statement that describes in detail the reasons why the certification cannot be made.
 2. The Executive Director, or designee, determines that such disclosure was not made for the purpose of restricting competition.
- C. Any of the following does not constitute a disclosure within the meaning of this article, paragraph A, line 1:

1. A bidder has published price lists, rates, or tariffs covering items being procured.
 2. A bidder has informed prospective customers of proposed or pending publication of new or revised price lists for such items.
 3. A bidder has sold the same items to other customers at the same prices being bid.
- D. A Bid Proposal made by a corporation is considered authorized by the board of directors of the bidder. Authorization is defined as signing and submitting the bid proposal, and includes the declaration of non-collusion on the part of the corporation.
- E. **UTAH DEPARTMENT OF TRANSPORTATION NON-COLLUSIVE BIDDING CERTIFICATION**
- "I declare under penalty of perjury under the laws of the United States and the State of Utah that neither I, nor to the best of my knowledge any member or members of my firm or company have either directly or indirectly restrained free and competitive bidding on this project by entering into any agreement, participating in any collusion, or otherwise taking any action unauthorized by the Utah Department of Transportation, with regard to this Contract."
- F. Signing the Bid Proposal (~~manually or electronically~~) ~~at the bottom of the Bid Schedule~~ certifies compliance with all provisions of this Non-Collusive Bidding Certification.

1.17 DEBARMENT

- A. The Department may debar a Contractor from performing any work on Department or Department administered projects if:
1. The Contractor or an affiliate (defined as an owner, director, manager, officer or fiscal agent of the Contractor) has been convicted of or entered a plea of guilty or *nolo contendere* to a bid-related or a contract-related crime in any Court of competent jurisdiction.
 2. The Contractor or an affiliate has made a public admission of any bid-related or contract-related crime.
 3. The Contractor or an affiliate has falsified information or submitted deceptive or fraudulent statements in connection with prequalification, bidding, or performance of a contract.
 4. The Contractor or an affiliate has violated relevant antitrust laws covering bid rigging, collusion or restraint of free competition among contractors; (Violations covered by the Sherman Antitrust Act, 15 U.S.C. 1, *et seq.* and Title 76, Chapter 10, Section 911, *et se.*, U.C.A. 1953, as amended).
 5. The Contractor or an affiliate has demonstrated willful wrongdoing reflecting a lack of integrity in bidding or performing public projects.

6. The Contractor, joint venturer, stockholder of 5 percent or more of the Contract, an affiliate, or any immediate relatives of the aforementioned, has been debarred or affiliated with another debarred person or contractors by the Federal Government or by another State government.
7. The UDOT Deputy Director has reasonable grounds to believe and finds that the Contractor has acted in collusion with others to perform work on a project that supposedly satisfies disadvantaged business enterprise goals or requirements through other than *bona fide* disadvantaged business entities in any combination of individuals, firms or corporations.
8. The Contractor or affiliate has defaulted under previous contracts.
9. The Contractor or affiliate has unsatisfactory performance on previous work or current Contract(s) consisting of, but not limited to:
 - a. Noncompliance with Contract.
 - b. Failure to complete work on time.
 - c. Instances of substantial corrective work before acceptance.
 - d. Instances of completed work that requires acceptance at reduced pay.
 - e. Production of non-specification work or materials, and when applicable, required price reductions or corrective work.
 - f. Failure to provide adequate safety measures and appropriate traffic control that endangered the safety of the work force and public.
10. The Contractor or an affiliate has questionable moral integrity as determined by the Department, the Attorney General of Utah or the Attorney General of the United States.
11. Failure to reimburse the State for monies owed on any previously awarded contract including those where the prospective bidder is a party to a joint venture and the joint venture has failed to reimburse the State for monies owed.
12. The UDOT Deputy Director has reasonable grounds to believe and finds that the public health, welfare or safety imperatively requires such action.

1.18 STATUS PENDING DEBARMENT

- A. Contractor notified of proposed debarment as provided above is not permitted to contract with the Department, nor act as a subcontractor unless a request for either an information or formal hearing is pending.
- B. The proposed debarment period does not commence until the Department decision has been issued following the said hearing or hearings.

1.19 LENGTH OF DEBARMENT

- A. Debarment is for a term of not less than 6 months and up to 3 years as determined by the Deputy Director.

- B. Department may adjust the period of debarment for mitigating circumstances including but not limited to the following:
 - 1. Degree of culpability.
 - 2. Restitution of damages to the State.
 - 3. Cooperation in the investigation of other bidding crimes.
 - 4. Disassociation with those involved in bidding crimes.
 - 5. Protection of the State that may be required.
 - 6. If such action would have unintended adverse consequences on competition.
- C. Debarment in no way affects the obligation of a Contractor to the Department to perform under existing contracts.
- D. The Department also reserves the right to declare a debarred Contractor in default on any existing contracts for adequate cause as provided in such contracts.

1.20 DEBARMENT - PROCEDURES

- A. The procedure described in this Section, article “Debarment” applies if it is found that a contractor or an affiliate thereof is violating the prohibited activities.
- B. The Engineer for Construction notifies the Contractor in writing and by certified mail of the Department’s intention to debar. Written notice specifies:
 - 1. The grounds for such intended debarment.
 - 2. The date debarment becomes effective and the intended period of debarment.
 - 3. The procedure to follow if the Contractor desires to challenge the debarment or to offer information to the Department in mitigation of its alleged actions.
- C. Within 15 calendar days of receiving the notice of intended debarment, the Contractor may request either:
 - 1. An informal hearing before the Engineer for Construction.
 - 2. A formal hearing before the UDOT Deputy Director.
- D. The Contractor who elects to proceed at an informal hearing has the opportunity to appear at a mutually agreed upon time and location.
 - 1. Contractor may supply information in support of their position and has the opportunity to review the Department's evidence, present evidence, and discuss matters informally.
 - 2. No legal counsel is permitted for either party at the informal hearing.
- E. The UDOT Deputy Director of Transportation or designee conducts a formal hearing with assistance from the ~~State Attorney General's Office~~ Department's

legal counsel. The Contractor who appears may be represented by counsel and has the opportunity to review the Department's evidence, and to present evidence in rebuttal either by sworn affidavit or by sworn testimony.

- F. Following either a formal or informal hearing, the Department representative conducting the hearing issues a written decision no later than 30 calendar days following the hearing.
- G. The decision of the UDOT Deputy Director following a formal hearing is administratively final and specifies the facts justifying the Department's actions and conclusion.
- H. If the Engineer for Construction's decision is to be appealed, the Contractor files notice in writing with the UDOT Deputy Director within 20 calendar days after receiving the decision from the Engineer for Construction. The Deputy Director then schedules a formal hearing as specified above.

PART 2 PRODUCTS Not used.

PART 3 EXECUTION Not used.

END OF SECTION

Standard Committee Submittal Sheet

Name of preparer: Thomas LeHolm

Title/Position of preparer: Contract, Estimates/Agreements Manager

Specification/Drawing/Item Title: 00515 – Award and Execution of Contracts

Specification/Drawing Number: _____

Date Process Started: 1/03

Date Process Completed: 9/03

Status: ' Approved ' Disapproved ' Sent Back For Review

Enter appropriate priority level: 3

(See last page for explanation) _____

Sheet not required on editorial or minor changes to standards.

NOTES:

1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on their web page.
(<http://www.udot.utah.gov/esd/specbook/StandardsCommittee.htm>)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

Changes are due to the implementation of our new Electronic Bidding System and also, procedural changes were brought in line with the corresponding Policies & Procedure.

Changes were made to facilitate the new Electronic Bidding System and updates to procedural changes made to corresponding Policies & Procedures.

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

Not applicable

- C. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

Construction Engineers

Contractors

AGC

Suppliers

Consultants (as required)

Others (as appropriate)

Prequalification Board Secretary

PDBS Project Manager

Deputy Construction Engineers

Contracts, Estimates/Agreements Section

- D. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.

Not Applicable

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).
3. Life cycle cost.

- E. Safety Impacts?

Not applicable

- F. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

Not applicable

Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

- | | |
|------------|---|
| Priority 1 | Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised. |
| Priority 2 | Upon posting, this impacts projects being advertised. |
| Priority 3 | Upon posting, the approved standard takes effect two weeks later for projects being advertised. |

SECTION 00515

AWARD AND EXECUTION OF CONTRACTS

PART 1 GENERAL

1.1 RELATED SECTIONS

- A. Section 00570: Definitions.

1.2 CONSIDERATION OF BID PROPOSALS

- A. The Department publicly opens properly executed and reads the Bid Proposals; using the current version of the EBS to then compares bids them on the basis of the summation of the products of the quantities and the unit bid prices.
 - 1. Department makes the results of the comparisons available to the public.
 - 2. The unit bid prices govern if a discrepancy exists between unit bid prices and extensions.
- B. The Department reserves the right to reject any or all Bid Proposals, waive technicalities, advertise for new Bid Proposals or proceed to do the work.
- C. The bidder can request withdrawal of a bid after bid opening by:
 - 1. Submitting to the Engineer for Construction a notarized affidavit within 24 hours after bid opening that declares a clerical or mathematical error in bid preparation.
 - 2. Submitting accompanying declaration with original work sheets used in bid preparation.
 - 3. Describing specific error(s) in detail.
 - 4. Verifying that error has is of a significant monetary effect in the amount of 3 percent of the bid or greater.
- D. Judgmental errors are not grounds for requesting bid withdrawal.

1.3 AWARD OF CONTRACT

- A. The Department awards the Contract to the lowest responsible bidder within 30 calendar days.

- B. The Department may withhold award beyond the 30 days with the approval of the successful bidder.
- C. If the award is not made within 30 calendar days, the bidder may withdraw the Bid Proposal without liability.
- D. The Department notifies the successful bidder by letter mailed to the address shown on the Bid Proposal that the bid has been accepted and ~~that~~ the Contract has been awarded.

1.4 CANCELLATION OF AWARD

- A. The Department reserves the right to cancel the award of any Contract before execution without liability.

1.5 RETURN OF PROPOSAL GUARANTY

- A. ~~All~~ Proposal guaranties are returned after satisfactory a-substantial contract bonds and all insurances has have been furnished and the Contract has been executed.
- B. A bidder is not released from the bidding obligation because of an alleged error in the preparation of the Bid Proposal unless the Department returns the proposal guaranty.

1.6 CONTRACT BONDS

- A. The Department furnishes required necessary contract bond forms. ~~to the successful bidder.~~
- B. Return eExecuted and return forms to Department as required by the Utah Procurement Code.
 - 1. **Payment Bond** secures the payment of the claims of laborers, mechanics or materialmen employed on the work under the Contract.
 - 2. **Performance Bond** guarantees the faithful performance of the Contract.
- C. Each bond must equal 100 percent of the contract price.
- D. Underwriting Limitation is stated in the United States Department of Treasury Circular 570; "Surety Companies Acceptable on Federal Bonds." Only companies listed in the Department of Treasury Circular 570 are acceptable.
- ~~E. The Department declares a bidder's Bid Proposal non responsive if its surety company is not listed in the Department of Treasury Circular 570 or if~~

~~co-insurance, reinsurance, or other acceptable method is not provided when a company's underwriting limitation is deemed insufficient.~~

- EF. The Department may make alterations, extensions of time, extra and additional work, and other changes authorized by the Contract without securing the consent of the surety or sureties on the contract bonds.
- FG. If a Contractor's surety is unable to provide payment, the Department cancels all work on the Contract, unless the Department determines it is in the public interest to continue the work.
- GH. As an alternate contract bond, furnish a cash bond of two cashier's checks, each in the amount of Contractor's bid amount.
1. The Department holds the cash bond and uses it when needed for correction of any non-performance or non-payment.
 2. Upon release by the Engineer for satisfactory substantial completion of the work, Department returns to the Contractor one half of the cash bond minus any cost against the bond, will be returned to the Contractor.
 3. If no payment claims have arisen within 90 days after release by the Engineer, the Department releases the remaining cash bond.
 4. The Department holds the cash bond until the non-performance and non-payment issues are resolved. Contractor accrues no liability during this time.
 5. The Department decides the need for withholding the cash bond.

1.7 EXECUTION AND APPROVAL OF CONTRACT

- A. Return the signed Contract, properly executed and contract bonds, all required insurances to the Department within 15 calendar days after of notice of award.
1. The bidder can withdraw the bid proposal without penalty if the Department does not execute the Contract within 30 calendar days after receiving signed Contracts and Bonds and insurances.
 2. The Contract is not considered in effect until executed by all parties.

1.8 MATERIALS GUARANTY

- A. The successful bidder must:
1. Furnish a complete statement of the origin, composition, and manufacturer of material proposed for use in the construction.
 2. Furnish samples to be tested and inspected for meeting the Contract.
- B. Contractor may be required to furnish a written guaranty covering certain items of work for varying periods of time from the date of acceptance of the Contract.

1. Department specifies in the Contract the work to be guaranteed, the form, and the time limit of the guaranty.
2. Sign and deliver the guaranty to the Engineer before acceptance of the Contract in accordance with Section 00570, line A of article entitled "Completion."
3. Upon completion of the Contract, the required Performance Bond may be reduced to conform to the total amount of the contract bid prices for the items of work to be guaranteed. This amount continues in full force and effect for the duration of the guaranty period. Refer to this Section, article, "Contract Bonds."

1.9 FAILURE TO EXECUTE CONTRACT

- A. The Department can cancel the notice of award and keep the proposal guaranty if the successful bidder fails to execute the Contract and file acceptable Bonds and insurance certificates evidencing coverage within 15 calendar days after the date of the Notice of Award.
- B. The Department may then award the Contract to the next lowest responsible bidder, or may re-advertise the work.

PART 2 PRODUCTS Not used

PART 3 EXECUTION Not used

END OF SECTION

Standard Committee Submittal Sheet

Name of preparer: Lynn Bernhard
Title/Position of preparer: Methods Engineer
Specification/Drawing/Item Title: 01575, Dust Control and Soil Stabilizing
Specification/Drawing Number: _____
Date Process Started: August 2001 Date Process Completed: July 2003
Status: ' Approved ' Disapproved ' Sent Back For Review

Enter appropriate priority level: 3

(See last page for explanation) _____

Sheet not required on editorial or minor changes to standards.

NOTES:

1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on their web page.
(<http://www.udot.utah.gov/esd/specbook/StandardsCommittee.htm>)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

An alternate dust control material is needed when water is not readily available, or to expensive, or may be environmentally unacceptable due to drought.

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

Measurement and payment is handled the same quantity and unit basis as water, i.e. by the gallon of what is actually applied. Payment would be based on solution of 25% magnesium chloride, in water, on a per gallon rate applied.

- C. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

In-House:

Materials – Thru NPEP – Bill Lawrence, Sara Carlock – Personal Contact

Construction – Thru NPEP – Nick Peterson

Maintenance – Richard Miller, Lynn Bernhard, Kleston Laws, Scott Goodliffe, John Gunderson, Kevin Griffin, Ross Christensen – Personal Contact

Public traveling routes near construction zones, haul roads or gravel pits.

Customer complaint R4 and R1, 2002 – telephone

Construction Engineers

Nick Peterson – Region 1 – Personal Contact

Contractors

Suppliers

Reilly Wendover, Great Western Minerals – Phone Call

Consultants (as required)

Others (as appropriate)

Daniel Avila – Development & Implementation Engineer, Ed Rock – Region 2 Design Engineer, Glenn Schulte – Traffic and Safety, Scott Andrus – Region 3 Materials Engineer, Dave Eixenberger – Structures, Russ Tangren – Price District Construction, Barry Sharp – Research Division – All personal contact through NPEP

Doyt Bolling – Utah T2 Center at USU – Personal and Written

Water Users (communities, government agencies, utility companies) – Governor Leavitt has asked all Utahns via television to conserve and use water wisely, Dave Ovard, Manager Jordan Valley Water Conservancy District – Conversation with Lynn Bernhard

D. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.
Field treatment of control dust will be reduced due to fewer passes and grading being required to maintain the same level of palliative effectiveness. Total volume of water should be reduced by 90%. Magnesium Chloride costs \$ 0.25 per gallon(diluted) plus handling.

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).
Supervising and pay accounting are reduced due to fewer applications. A treatment under heavy use and dry conditions should last seven days or more. During this same time typical contractor watering practices would involve 30 to 50 applications to maintain the same level of dust suppression.
 3. Life cycle cost.
- E. Safety Impacts?
Fewer water trucks on public roads, fewer water applications on haul roads, thus reducing accident exposure. Fugitive dust is substantially reduced, heighten adjacent traveling public safety.
- F. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.
Magnesium Chloride is a widely used dust palliative. UDOT Maintenance Division uses it on SR 163 with success.

Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

- | | |
|------------|---|
| Priority 1 | Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised. |
| Priority 2 | Upon posting, this impacts projects being advertised. |
| Priority 3 | Upon posting, the approved standard takes effect two weeks later for projects being advertised. |

Section 01575

DUST CONTROL AND SOIL STABILIZING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Provide and apply magnesium chloride or other similar products for dust control, pre-wetting, mixing or compacting materials. (Note: Product to be used only when water is not economically available or at the request of the Engineer.)

1.2 PAYMENT PROCEDURES

- A. Reapply dust control product at no additional cost to the Department when material is allowed to dry due to the Contractor's inattention or neglect.
- B. The Department will not pay separately for furnishing or applying suppressant used in:
 - 1. Areas around all HMA and PCC plants, pits, and crusher operations.
 - 2. Roads used to haul materials to and from project site.
 - 3. Roto-milling, sawing, or grinding operations.

1.3 REFERENCES

- A. ***40 Code of Federal Regulations 261 - Chemical Properties***
- B. ***Nace Standard TM-01-69 (1976 rev.) as modified by Pacific Northwest States - Corrosion test data.***
- C. ***ASTM D 1429 Test Method A - Pycnometer at 20 degrees C +/- 1 degree C.***
- D. ***ASTM D 1293 Test for PH***

PART 2 PRODUCTS

2.1 Liquid Soil Enhancing Dust Palliative

- A. Free from dirt, silt, or other detrimental matter, and in adequate quantities for dust control and soil enhancing.
- B. The solution shall not contain settle able solids greater than 1.00% by volume. Ninety-nine percent (99.0%) of the settle able solids shall pass through a number 10 sieve after being stored at -17.8 degrees C +/- 1 degree for 168 hours.**
- C. The material supplied shall have no constituents which shall cause residual waste to meet the definition of hazardous waste found in 40 CFR 261**
- D. Product must contain no less than 25% magnesium chloride as determined by Atomic Absorption Spectrophotometry as described in "Standard Methods for the Examination of Water and Waste Water", APHA - AWWA - WPCF.**
- E. Weight per gallon will be established according to the specific gravity and percentage of magnesium chloride contained in the product bid as indicated by the bidder. Specific Gravity shall be determined by ASTM D 1429 Test Method A - Pycnometer at 20 degrees C +/- 1 degree C.**
- F. The pH must be 6.0 - 9.0 as determined by ASTM D 1293 except a dilution shall be made of 1 part chemical product to 4 parts distilled water before attempting a reading.**
- G. Two 2 - liter samples of each delivery from the delivery vehicle of concentrated product. Sampled at the point of delivery(300 gallon tote, truck load, or tank car).**
- H. Liquid chemical dust palliative of soil enhancing product shall not contain constituents in excess of the following limits, as stated in parts per million(ppm):**

<u>Material</u>	<u>PPM Allowed</u>
<u>Phosphates</u>	<u>25.00</u>
<u>Cyanide</u>	<u>0.20</u>
<u>Arsenic</u>	<u>5.00</u>
<u>Copper</u>	<u>0.20</u>
<u>Chromium</u>	<u>0.20</u>
<u>Cadmium</u>	<u>0.50</u>
<u>Mercury</u>	<u>0.20</u>

<u><i>Lead</i></u>	<u><i>0.05</i></u>
<u><i>Zinc</i></u>	<u><i>1.00</i></u>
<u><i>Barium</i></u>	<u><i>10.00</i></u>
<u><i>Selenium</i></u>	<u><i>5.00</i></u>

2.2 EQUIPMENT

- A. Liquid distribution system: sel-propelled, pressure distributor with a spray system, equipped with a positive shut-off control. Pressure pump must have a capacity to apply the whole load uniformly.
- B. Pressure system must operate at least 75 percent of the time during five successive work days or be removed from the project. In case of pressure system failure, a gravity flow spray system may be used for the remainder of the shift.
- C. Water truck: 1000 U.S. gallons minimum capacity, with the capacity clearly and permanently marked on the tank. Engineer may require Contractor to verify capacity.

PART 3 EXECUTION

3.1 APPLICATION

- A. Apply dust palliative in quantities and locations as directed by the Engineer. Dust control may be required at any time.

END OF SECTION

Pay item

Per gallon of a 25% magnesium solution.

Standard Committee Submittal Sheet

Name of preparer: Larry Buss
Title/Position of preparer: Deputy Construction Engineer
Specification/Drawing/Item Title: Survey and As-Built Construction Plans
Specification/Drawing Number: 01721 and 01722
Date Process Started: _____ Date Process Completed: _____
Status: ' Approved ' Disapproved ' Sent Back For Review

Enter appropriate priority level: 3

(See last page for explanation) _____

Sheet not required on editorial or minor changes to standards.

NOTES:

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(<http://www.udot.utah.gov/esd/specbook/StandardsCommittee.htm>)
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Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

Information on these specifications will be posted as soon as available.

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.
- C. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

Construction Engineers

Contractors

Suppliers

Consultants (as required)

Others (as appropriate)

D. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.
2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).
3. Life cycle cost.

E. Safety Impacts?

F. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

Priority 1 Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised.

Priority 2 Upon posting, this impacts projects being advertised.

Priority 3 Upon posting, the approved standard takes effect two weeks later for projects being advertised.

SECTION 01721

SURVEY

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Schedule, coordinate, and provide all construction surveying, staking, calculations essential to complete the project and properly control the entire work.
- B. Directed surveying as requested by the Engineer.

1.2 RELATED SECTIONS

- A. Section 01282: Payment
- B. Section 02896: Boundary Survey

1.3 MEASUREMENT PROCEDURES

- A. Directed Survey: If extra survey work is needed, a 2-Person Crew measured by the hour authorized. Department makes no additional payment for travel time to and from the project.
- B. Directed Survey: If extra survey work is needed a 3-Person Crew measured by the hour authorized. Department makes no additional payment for travel time to and from the project.

1.4 PAYMENT PROCEDURES

- A. If needed and approved, directed survey work paid for in the accepted quantities at the following rates:

2 person survey crew	\$130.00 per hour
3 person survey crew	\$155.00 per hour
1 person computation and /or CAD	\$ 65.00 per hour

- B. The number of hours required for computations and/or drafting in total cannot exceed 33 percent of actual survey hours, established on a percent basis prior to directed survey work starts.

1.5 SUBMITTALS

- A. The Department requires that a Professional Engineer or Professional Land Surveyor registered in the State of Utah sign and seal all submittals.
- B. Resubmittals may be required depending on completeness and correctness of the work.
- C. Prior to beginning work, submit a statement indicating all Department-provided horizontal and vertical control have been field checked and the control has been determined to be accurate within the tolerances specified in Article 3.4 "Control Point and Survey Tolerances." Attach field survey information used to verify control. If discrepancies are found, notify the Engineer verbally and in writing.
- D. Prior to beginning work, provide a written description of the equipment, manpower, methods, and data storage format proposed for use to complete all survey activities.
- E. Record keeping: Keep all field notes, diaries, and books according to standard surveying practice.
 - 1. Loose leaf books not acceptable.
 - 2. Make available at any time all survey records including field notebooks and forms used for the work to the Engineer upon verbal or written request.
 - 3. During construction, keep all documentation at a location approved by the Engineer.
- F. After project completion, return to the Engineer all surveying and design data and "as staked/constructed" drawings in Microstation format clearly showing all final dimensions, lines, grades, tie-ins and deviations from contract plans.
- G. Provide a red-lined hard copy plan set showing as-constructed features denoting changes from the original design.

1.6 QUALITY ASSURANCE

- A. Responsible for survey and control of the work, and for correcting Contractor errors, whether the errors are discovered during the actual survey work or in subsequent phases of the project. Bear any cost overruns resulting from Contractor errors.

- B. Perform all work in accordance with the plans and specifications and standard Engineering and Surveying practices under the responsible charge of a Professional Engineer or Professional Land Surveyor duly and properly registered in Utah.
- C. The Engineer may spot check the work for accuracy and may reject unacceptable portions of work. Resurvey rejected work and correct work that is not within the specified tolerances at no additional expense to the Department.

PART 2 PRODUCTS

2.1 EQUIPMENT

- A. Furnish tools, supplies, and stakes suitable for use in highway survey work.
- B. Furnish stakes and hubs of sufficient length to provide a solid set in the ground with sufficient surface area above ground for necessary legible markings.
- C. Furnish survey instruments and supporting equipment capable of achieving the specified tolerances. Calibrate survey equipment for accuracy prior to beginning survey work and as required.

PART 3 EXECUTION

3.1 PREPARATION

- A. Discuss and coordinate the following with the Engineer before survey work begins:
 - 1. Required submittals
 - 2. Survey and staking methods
 - 3. Stake markings
 - 4. Grade control
 - 5. Referencing
 - 6. Structure control
 - 7. Any other procedures and control necessary for the work
 - 8. Documentation procedures
- B. Establish construction survey points, elevations and grades as necessary to control layout and complete the work. Verify all control surveying and staking meets specified tolerances for prior to beginning work.

- C. Calculate all grades, elevations, offsets and alignment data necessary for staking and/or setting items of work. Obtain approval from the Engineer for alternate methods of establishing grade control with wire lines, computer or laser controlled grading or other suitable methods.
- D. Provide appropriate traffic control for all survey activities.
- E. The Department furnishes:
 - 1. Plans showing locations of control points
 - 2. Plans showing locations of Bench Marks
 - 3. Cross sections developed during design, if any
 - 4. Electronic project data, if any
 - 5. Digital Terrain Model used for design, if any

CONTRACT PROVISION DISCLAIMER

RELEASE OF UDOT DATA: Contractor may obtain an electronic copy of the Data Points prepared by UDOT. UDOT provides data points in Microstation and/or Inroads format only. Contractor responsible for translation into other formats. This data does not include the commercial software needed to read the points. In order to obtain an electronic copy, Contractor makes a written request to the Engineer. Contractor agrees and understands that the data points are prepared by UDOT for its own purposes and not for the benefit of private individuals or businesses. Contractor waives any and all claims that may result from the use of or reliance upon the data points. Contractor indemnifies UDOT and holds it harmless for any damages, costs, attorneys' fees, or other liabilities that might be incurred as a result of the Department's use and reliance on the data.

3.2 DIRECTED SURVEY

- A. Conduct directed surveying if requested by the Engineer.
 - 1. Includes work needed for changes and extra work. Provide all labor, materials, and equipment including global positioning satellite equipment.
 - 2. Obtain prior written authorization from the Engineer documenting the affected work and requirements before performing work under these items.

3.3 COMPUTATIONS AND PLOTS

- A. Use cross-sections to calculate volume measurements.
 - 1. Superimpose final cross sections with original cross sections and calculate final quantities using the average end area method.

2. Develop cross-sections from field measurements.
 - a. Take cross section measurements both before and after excavation and prior to backfill.
 - b. When the centerline curve radius is less than or equal to 500 ft, take cross sections at a maximum centerline spacing of 25 ft.
 - c. When the centerline curve radius is greater than 500 ft, take cross sections at a maximum spacing of 50 ft.
 - d. Take additional cross sections at breaks in terrain and at changes in typical sections.
 - e. For each cross section, measure and record points at breaks in terrain, but at least every 25 ft unless otherwise approved by the Engineer.
 - f. Measure and record points to at least the anticipated slopes and reference locations.
 - g. Reduce all cross section distances to horizontal distances from centerline.
 - h. Take cross sections at right angles to tangents and normal to curves.
 - i. Include in cross sections all grades, locations, and existing ground line profiles.
3. May develop cross sections from digital terrain models provided that:
 - a. The ground survey locations do not exceed 100 ft in any direction
 - b. Major breaks in terrain are also included.
 - c. The horizontal and vertical control for the project is used
 - d. The DTM is verified accurate to require tolerances by spot checking throughout the length of the project.

B. Engineer may approve alternate methods of calculating quantities.

3.4 STAKE MAINTENANCE AND MARKING

- A. Maintain ALL staking necessary for the work until the construction has been completed and accepted by the Engineer.
 1. Legibly mark all survey stakes with station and offset referenced to their respective control line.
 2. Mark slope, reference and guard stakes with station.
 3. Renew illegible stakes at no additional cost to the Department.
- B. Provide and maintain reference stakes that identify stationing at least every 150 ft until all work has been completed and accepted by the Engineer.

3.5 CONTROL POINT AND SURVEY TOLERANCES

- A. Relocate initial horizontal and vertical control points in conflict with construction to areas that will not be disturbed by construction operations. Furnish the coordinates and elevations for the relocated points before the initial points are disturbed.
- B. Protect bench marks from construction activities. Position all bench marks to allow a level rod to stand vertically and squarely on the mark. Reference bench marks to centerline and horizontal measurements.
- C. Survey and establish control within the following tolerances:

Description	Horizontal	Vertical
	Decimals of a foot	
Control points	" 0.01	" 0.01
Centerline points	" 0.04	" 0.04
Cross sections and slope stakes	" 0.10	" 0.10
Slope stake references	" 0.10	" 0.10
Culverts and Ditches	" 0.10	" 0.10
Minor drainage structures	" 0.10	" 0.04
Curb and gutter	" 0.02	" 0.02
Guardrail and concrete barrier	" 0.05	-----
Retaining walls	" 0.05	" 0.01
Bridge substructure and overall	" 0.01	" 0.01
Bridge superstructure and overall	" 0.01	" 0.01
Environmental Control Limits	" 1.00	-----
Clearing and grubbing limits	" 1.00	-----
Right of Way Limits	" 0.02	-----
Roadway subgrade finish stakes	" 0.10	" 0.10
Roadway finish grade stakes	" 0.04	" 0.04
Signals and electrical	" 0.08	" 0.04
Striping	" 0.08	-----
Paving reference line	" 0.04	" 0.01

Coordinate the survey tolerances of any items not listed above with the Engineer.

- D. Staking limits:
1. Stake clearing limits on both sides of centerline at each established station. Locate the clearing limit on the ground as shown by the cut and fill limits on the plans.
 2. Stake right of way limits every 50 ft maximum on tangents, every 25 ft maximum on curves and at all right of way breaks. If staking distance effects line of sight, reduce the distance.
 3. Stake environmental control limits both sides of centerline at each established station. Locate the environmental control limits on the ground as shown by the slope rounding contours and environmental and silt fence locations as shown on the Plans. Stake environmental control limits every 50 ft and every 25 ft where environmental or silt fence is required.
- E. Furnish reference stakes for all slope stakes and stakes used for setting items for work.
1. Maintain the reference stakes for the duration of the project until the Engineer approves removal.
 2. Establish and set slope stakes and references on both sides of centerline at cross section locations.
 - a. When the centerline curve radius is less than or equal to 500 ft, place slope stakes at a maximum centerline spacing of 25 ft.
 - b. When the centerline curve radius is greater than 500 ft, place slope stakes at a maximum spacing of 50 ft.
 3. Establish slope stakes in the field as the actual point of intersection of the design slope with the natural ground line.
 4. Set slope stake references outside the clearing limits.
 5. Include all reference point and slope stake information on the reference stakes.
- F. After the slope staking is completed, record on the cross section guard stakes the vertical distance from the reference point (RP) to the construction grade, at a minimum horizontal distance of 10 ft outside the clearing limits or at right of way.
- G. Setting grade finishing stakes:
1. For grade elevations and horizontal alignment:
 - a. On centerline.
 - b. On each shoulder at roadway cross section locations and between centerline and shoulder with a maximum spacing of 15 ft.
 - c. At the top of subgrade and the top of each aggregate course.
 2. Locations:
 - a. Where turnouts are constructed, set stakes on centerline, on each normal shoulder, and on the shoulder of the turnout.
 - b. In parking areas, set hubs at the center and along the edges of the parking area.
 - c. Set stakes in all ditches to be paved.

3. Maximum spacing between stakes along the alignment: 50 ft.
4. Use guard stakes, etc. at each grade finishing stake.
5. Reset grade finishing stakes as many times as necessary to construct the subgrade and each aggregate course.

3.6 CONCRETE PAVING

- A. Develop a method of horizontal and vertical control for the placement of concrete pavement.
 1. Utilize laser, wire, or string line, for example, to maintain horizontal and vertical control.
 2. Maximum spacing: 50 ft.
 3. Set control on both sides of roadway.
- B. Profile surface at each edge of placement and adjust grades for smoothness as approved by the Engineer.
- C. Measure pavement thickness every 25 ft and adjust as needed.
- D. Stake concrete joint and station stamp locations.

3.7 DRAINAGE STRUCTURES

- A. Stake drainage structures to fit field conditions and in coordination with the Engineer. The location of the structures may differ from the plans.
 1. Survey and record the ground profile along centerline of structure
 2. Determine the slope catch points at inlets and outlets.
 3. Set reference points and record information necessary to determine structure length and end treatments.
 4. Stake ditches or grade to make the structure functional.
 5. Plot the profile along centerline of the structure to show the natural ground, the flow line, the roadway section, and the structure.
 6. Mark guard stakes with the following, when applicable:
 - a. Diameter, length and type of culvert (for example 18 inch x 35 ft corrugated metal pipe (cmp))
 - b. The vertical and horizontal distance from the hub to the invert at the end of the culvert or any intermediate point as needed or directed
 - c. Flow line grade of the pipe
 - d. Station
 7. For storm sewers and waterlines provide a reference at a maximum spacing of 50 ft. Reference inverts of pipe at all manholes.

3.8 BRIDGES

- A. Set a minimum of 3 horizontal and vertical control reference points to be used for surveying all bridge substructure and superstructure components, including but not limited to; pile locations and cutoffs, line and grade for abutments and bents, beam seats, anchor bolts and screed grades.
- B. Set intermediate slope stakes at bridge abutments to establish transitions. Place finish grade stakes on the centerline of abutment bearing and at the top of slope of all bridge berms. Place finish grade stakes on each side at top, mid-point or slope and toe of fill.

3.9 BOX CULVERTS

- A. Set horizontal and vertical control and reference points. Establish and reference the centerline, back of parapet, skew, and flow line elevations at inlet, outlet and breaks.

3.10 CURB AND GUTTER

- A. Set curb and gutter staking at 25 ft intervals on tangent and 10 ft intervals on curve radii. Set line and grade for curb and gutter within 0.02 ft. of the proposed or established grade line.

3.11 GUARDRAIL

- A. Stake guardrail vertical and horizontal control at a maximum spacing of 25 ft on tangent sections and 10 ft on curved sections unless otherwise approved.

3.12 EXISTING SURVEY MONUMENTS

- A. Under the direction of a surveyor licensed in the State of Utah, locate and reference all private and public land survey monuments that may be destroyed by project construction activities prior to disturbing those existing monuments.
- B. Complete referencing and reestablishing those existing monuments at no cost to the Department and before project completion.
- C. In some counties the county surveyor references and reestablishes the monuments.
 - 1. Notify the county surveyor at least 30 days prior to the destruction of any monument.

2. Coordinate the reestablishment of section corner and quarter corner monuments with the county surveyor.
 3. Submit drawings and notes showing references to section corners and quarter corners to the Engineer.
- D. If a monument is found during construction but is not shown on the contract plans and must be reset, the Department pays for the additional work under the Directed Survey item.

3.13 RETAINING WALLS

- A. Set horizontal and vertical control and reference points. Establish and reference the centerline offsets for the walls, radius points, and the beginning and ending wall locations as shown on the plans.
- B. Set grade stakes as required for each lift of select material used on the MSE walls.
- C. Stake retaining wall vertical and horizontal control at a maximum spacing of 25 ft on tangent sections and 10 ft on curved sections unless otherwise approved.

3.14 CLEANUP

- A. Remove and dispose of all flagging, lath, stakes and other staking material after the project is complete.

3.15 UTILITIES

- A. As part of cooperating with the utility companies listed in Section 00727, stake control lines as needed so their facilities can be relocated to their proper final position. Also, stake crossings or potential points of conflict between facilities to give proper horizontal and vertical control for the relocation. Schedule this survey work with the utility companies to minimize delays and disruption of survey stakes. Replace all disturbed stakes as necessary to facilitate the relocations. The Contractor is responsible for costs incurred to relocate any utility more than once due to inaccurate or incomplete staking.

END OF SECTION

Change One - August 29, 2002
No changes made

Change Two - December 19, 2002
No changes made

Change Three – February 27, 2003
Articles Revised
 1.4 C deleted and moved to Measurement and Payment document

Change Four - April 24, 2003
No changes made

Change Five - June 26, 2003
Revised Articles
 3.3 A
 3.15 added

SECTION 01722

AS-BUILT CONSTRUCTION PLANS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Using an 11X17 set of original plans, record all changes to project in red ink.

1.2 RELATED SECTIONS

- A. Section 01282: Payment
- B. Section 01721: Survey
- C. Section 02896: Boundary Survey

1.3 PAYMENT PROCEDURES

- A. Include a minimum of \$2,000 in the original bid for furnishing As-built Construction Plans.
- B. Engineer verifies accuracy and completeness of drawings upon delivery.
 - 1. The Department pays 50 percent of bid amount upon delivery of As-built Construction Plans.
 - 2. The Department retains final 50 percent until drawings are reviewed by Engineer and found to be complete and accurate.

1.4 DRAWINGS

- A. Provide an As-built set of plans showing all as staked/constructed features denoting changes from the original design.
- B. Make all changes in red ink.
- C. After project completion, deliver to the Engineer, all supporting survey data and red-lined drawings.

D. Show all changes including:

1. Structures

- a. Reinforcing Steel
- b. Dimensions
- c. Roadway
- d. Beginning or ending station
- e. Alignment
- f. Grade
- g. Tie-ins
- h. Deviations from contract plans
- i. Dimensions
- j. Sign Structures
- k. Location of:
 - Drainage facilities
 - Fences
 - Permanent signs
 - Gates
 - Valves
 - Junction boxes
 - Retaining walls

E. Show station and offset for all guardrail and attenuators.

F. Show location of all underground utilities installed or relocated.

G. Show relocated initial horizontal and vertical control points including coordinates and elevations for the relocated points.

H. Show detailed placement of Right-of-Way markers including coordinates and elevations.

I. Reference benchmarks with centerline and horizontal offset measurements.

1.6 QUALITY ASSURANCE

A. The Engineer verifies the work for accuracy and completeness.

B. If additions or revisions are required, submit corrected drawings within 14 calendar days.

PART 2 PRODUCTS Not used

PART 3 EXECUTION

3.1 PREPARATION

- A. Discuss and coordinate with the Engineer at Pre-Construction meeting:
 - 1. Required submittals
 - 2. Required format

END OF SECTION